Manitoba

Annual Report 1990 - 91

Natural Resources

Minister of
Natural Resources

Legislative Building
Winnipeg, Manitoba, CANADA
R3C 0V8

The Honourable George Johnson
Lieutenant Governor of Manitoba
Government House
Winnipeg, Manitoba

Your Honour:

I am pleased to present you with this the 60th Annual Report of the Manitoba Department of Natural Resources for the year ending March 31, 1991.

Yours truly,

Harry J. Enns
Minister

Manitoba

Deputy Minister of
Natural Resources

Legislative Building
Winnipeg, Manitoba, CANADA
R3C 0V8

The Honourable Harry Enns
Minister of Natural Resources
Legislative Building
Winnipeg, Manitoba
R3C 0V8

Dear Sir:

I am pleased to provide the Annual Report of Manitoba Natural Resources for the fiscal year 1990-1991.

Respectfully submitted,

Umendra Mital

Umendra Mital
Acting Deputy Minister

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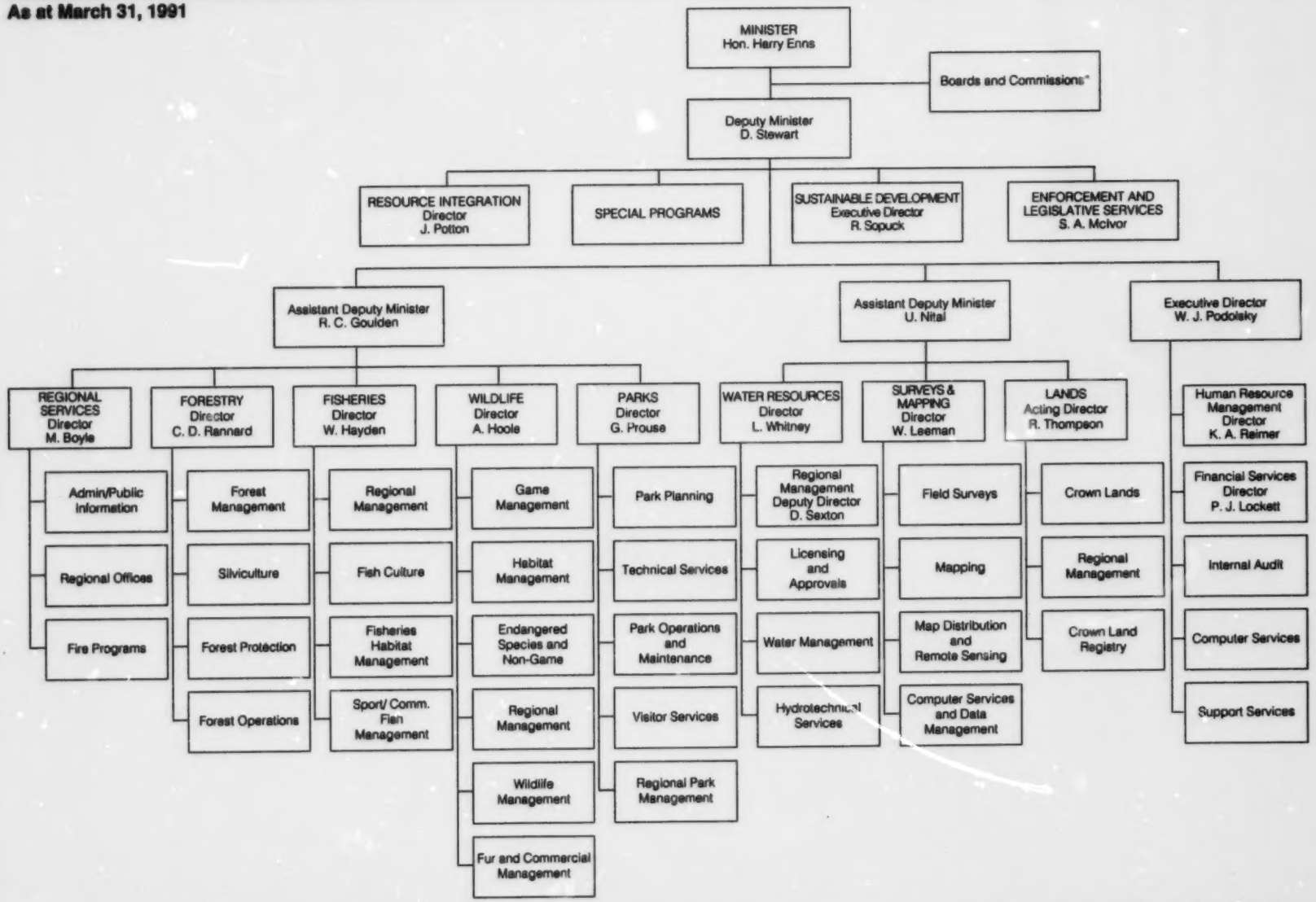
Organization Chart — Manitoba Natural Resources

As at March 31, 1991



Section 1

Executive Summary

Administrative Services....

Revenue Management Section handled approximately 79,000 separate transactions from 186 revenue sources, totalling $51,848,383.

In Disbursement's, approximately 50,400 payments were processed from some 290,000 documents, totalling approximately $48,500,000.

A test case of credit card acceptance from campers was implemented at Birds Hill Provincial Park. Also improvements were made to the automated budget and cashflow system which enhanced all phases of the Departments financial and budgetary process.

In 1990-91 the departmental average was 2.01 training days per employee, with the highest participation in workshops on Sustainable Development, Effective Performance Management, Essentials of Supervision, Firearm Training and Communicating with the Native Public.

Systems Section co-ordinated the acquisition of $710,277 worth of information systems software and hardware for the department. The number of microcomputers increased from the previous year's base of 325 to 393.

Under the Freedom of Information Act, 33 request were actioned with access granted in 28 cases, 2 granted partial access, 1 case denied and 2 withdrawn.

The departments assets and stores are estimated at $36 million along with over $10 million in buildings. Internal Audit completed one major audit and five special project audits, along with continuing required annual work.

To increase staff awareness and responsibilities towards Risk Management, 500 staff were given a one day training session in 15 different locations via the Manitoba Satellite Network. A Risk Management Steering Committee was formed to develop departmental policy and program guidelines.

Fisheries.....

The Manitoba Fisheries Strategy, which provides direction to staff for consistent and rational management programs, was revised to meet changing conditions and to strengthen its goal of establishing a public understanding of fisheries management direction within the province.

The Supreme Court decision of May 31,1990 (R.vs Sparrow), which clarified the fishing rights of aboriginal people led to departmental policy and federal regulation reviews and adjustments to ensure consistency with the Court's interpretation of these rights. As in previous years, fish stocking programs were continued to maintain and enhance provincial fisheries. 87.4 million walleye eggs were collected from four spawn collection sites, incubated at three hatcheries and produced a total of 58.1 million fry. Of these fry, 73% were allocated to commercial fishing stocking projects and 27% to sport fishing projects or waters.

The Grand Rapids Hatchery completed its first full year of operation under the $90,000.00 Manitoba Hydro funding agreement.

As mandated by Claim 18 - Northern Flood Agreement, studies and the development of preliminary reports on the ecological impacts of hydro-electric development of the Churchill-Nelson River systems on fisheries resources continued in 1990-91.

As required under Manitoba's new Environment Act, Habitat Management Section carried out fisheries environmental impact screening on some 86 development projects submitted for licensing.

Information on over 500 waterbodies in all six regions of Manitoba were compiled and incorporated into Manitoba's Fish Inventory and Habitat Classification System. This system, installed on regional computer hardware, allows managers easy access to information and data necessary for fisheries management, rehabilitation and enhancement programs and projects.

The open-water and winter fishery of 1990-91 resulted in a commercial fish production of 11.2 million kg., down 17% from the previous year. This, combined with the general state of the economy and the increased value of the Canadian dollar, resulted in fisherman earning much less for their catches.

In 1990-1991, 33 trout-farming operations and 58 commercial bait fishermen were licensed. Thirty-seven dealers were licensed to sell live bait with gross sales estimated at approximately $400,000.

Fisheries maintained its focus of encouraging public participation in fisheries management. During the year, emphasis was placed on informing anglers about the danger of introducing zebra mussels to Manitoba, the provision of angling information/regulations to new Canadians in their native languages and the production of new publications on Intensive Aquaculture and Fish Farming Operations.

Efforts to resolve the controversy between Red River sport fishing groups and Lake Winnipeg south basin commercial fishermen resulted in the adoption of a action pian process that will hopefully lead to the problems future resolve.

Due to the downward trend in fish prices, the Northern Fisherman's Freight Assistance Program continued to be of major importance to northern commercial fishermen. Beginning with the 1990 open water season, a change in funding arrangements established a $250,000 annual program limit.

Changes to the funding approach of the Fisherman's Loan Program are expected to bring about a stable cost of borrowing and enable the Manitoba Agriculture Credit Corporation to more effectively manage the program.

Lands.....

The activities of LANDS continued to focus on the administration of The Crown Lands Act, management and implementation of policies and objectives for Indian land claims, the co-ordination of Crown land allocations and the liaison and delivery of land contracts for a variety of land uses.

The chair for the planning and resource planning committees, which provide recommended actions on land use plans and resolutions of land-use conflicts, remained to be a major responsibility of the Regional Land Manager.

Work continued on the development/establishment of a complete central Crown lands registry.

Parks.....

During the year, Leases and Permits Section processed 348 assignments, renewed 72 leases and issued 131 new leases for vacation homes.

The Whiteshell Community Dock Program proved to be a success with the public and the Whiteshell District Association.

The opportunity for seasonal camping was introduced at Birds Hill Provincial Park, raising the total number of seasonal camping sites throughout the park system to 1,310. Fees charged for seasonal camping remained unchanged.

To determine their potential for inclusion into the Park System, planning studies were initiated for the Roaring River-Shell River area in the Duck Mountains, and the Steeprock River-Bell River area in the Porcupine Hills. A study team working in Atikaki Provincial Wilderness Park confirmed the existence of more prehistoric occupation sites and the viability of an additional canoe route.

Work continued on several planning projects, amongst others, Spruce Woods management plan, Seal River proposal for designation as a Canadian Heritage River, Whiteshell intensive zone review, and tallgrass prairie restoration.

Under the Branch's five-year vacation home inspection program, 1,043 cottage lots were inspected. Of this number 179 were found to be in violation of The Environment Act.

Major infrastructure upgrading/improvements continued to be carried out, some projects amongst others were, completion of the Paint Lake sewage lagoon, initial construction of lagoons at Bakers Narrows Provincial Recreation Park, Clearwater Provincial Park and Brereton Lake in the Whiteshell, upgraded and proper treatment equipment installed to park water systems, Paint Lake marina and Winnipeg Beach sea wall restoration, electrification of campsites in various parks and upgrading of the South Shore Road at Falcon Lake.

Year two of the implementation of the Branch's 3 Year Marketing Plan was completed.

A series of focus group studies were conducted to determine the needs of park users, under 24 years of age, and examine their attitudes to various park enforcement activities. The results will be used to develop strategy for controlling rowdyism along with a human relations workshop for park enforcement staff. Promotional activities included the branch's involvement in the Manitoba Travel Card Program - a cooperative venture with the Department of Industry, Trade and Tourism and Blackwoods Beverages, Environment Week, the first nation-wide Parks Day Celebration and various radio and newspaper promotions.

The Volunteer Campground Host Program continued successfully with 11 host positions in 9 campgrounds.

Hosts volunteered a total of 5,686 hours and made 16,232 personal contacts with park visitors, almost double the numbers from 1989.

Two of three park cooperating associations [Friends of Spruce Woods Inc. and the Descendants and Friends of Hecla Heritage Inc.] continued operations. The Friends of Whiteshell Inc. ceased operations in December 1990.

Interest groups and clubs throughout the province were involved in a number of cooperative park projects, including amongst others, beach and shoreline improvements at Rivers and Pelican Lake Provincial Recreation Parks, orienteering courses in Spruce Woods Provincial Heritage and Turtle Mountain Provincial Park, a snowmobile warming shelter and trail use ethic signs in Whiteshell Provincial Park and a tall grass prairie restoration project in Beaudry Provincial Heritage Park.

With completion of the Park Interpretation Resource Inventory and revision of the Strategy document, a 5 year plan is now in place to guide the interpretation of Manitoba's park system.

Park interpretive programs delivered at special events and visitor services facilities resulted in 57,334 visitor contacts, a number almost equal to the previous year.

The Sioux Pass Marsh signs were awarded 1st prize in the "trailside exhibit" category at a international competition sponsored by the National Association of Interpreters.

During the year, the number of private sector commercial operations within Provincial Parks rose by 13% to 175. Also, 33 new and renewed lease agreements were concluded.

The land and infrastructure of Norquay Provincial Recreation Park were transferred to a private operator following its sale via public proposal process.

Surveys and Mapping.....

During the year, requests for land/legal description services rose by 65% due to a growing client-business interest.

The activities of the Manitoba Geographical Names Program included liaison with the Canadian Permanent Committee on Geographical names in the drafting of texts for publications such as the Practical Guide to the Field Collection of Indigenous Geographical Names and the Principles and Procedures of Geographical Naming. Staff issued 128 Commemorative Name Certificates and processed 73 official name decisions which included the naming of Bartley Island [named after Natural Resource Officer, Keith M. Bartley, killed in a motor vehicle accident on November 29, 1989].

Under Field Surveys, 230 missing section and quarter-section monuments were replaced, 400 monuments upgraded, 500 vertical and 300 horizontal points established and as a continuing service to requesting government departments, 57 legal survey plans were registered and 40 information plans filled.

A Memorandum of Understanding was entered into with the federal Department of Energy, Mines and Resources on participation in a Radar Data Development Program designed to evaluate the extent remote sensed radar imagery may be used for natural resources management and environmental monitoring.

The Remote Sensing Centre completed its third year of satellite imagery processing for the Canadian Crop Information System. The Centre also arranged for the satellite data archive to be produced on the latest CD-ROM technology, which is being marketed commercially to a broad user group.

Work commenced on a three-year program to map land use/land cover for all of southern Manitoba from LANDSAT satellite imagery.The project results will be used to assist the development of strategies for agricultural sustainable development re. soil erosion and conservation.

On behalf of the Federal National Atlas Service, a land cover mapping project was completed for all of southern Canada for inclusion into the next edition of the National Atlas of Canada.

A vegetation mapping project for Canadian Forces Base, Shilo, was commenced involving a comparative vegetation analysis for the period between 1958 and 1988.

57,517 maps were distributed through retail sales and a dealer network that has grown to 80 outlets throughout Manitoba, northwestern Ontario, and the northern United States.

In the air photo library, 9,461 current aerial photographs were added, bringing the total on file to 802,443. Also, customers were supplied with 56,377 prints during the year.

Computer Services and Data Management provided information and services to over 42 agencies and responded to more than 230 requests for spatially

referenced positions and other surveying and mapping related data.

During the year, 94 geographic and specialty mapping service projects were completed along with 374 maps or map related products.

Compilation of the 1:20,000 topographic maps of southern Manitoba continued with the printing of 33 multi-coloured maps and completion of digital data sets, the latter to be used to support Geographical Information Systems and other digital applications.

Resource Integration.....

The branch co-ordinated the 1991 Park Visitor Survey, and completed a special survey of Grand Beach cottagers re. interest in funding a new water supply system.

A major review of water programs and engineering services provided by the Department was completed. The branch evaluated the implementation of the new Forest Fire Initial Attack Response System and assisted in the development a Fire Load Index and new contract format for the cost-sharing of fire program activities on Indian Reserves.

Approximately 300 development proposals under the Environment Act were reviewed. Additionally, continued co-ordination was provided to the review of all major resource development projects, such as Forest Management Plans and Manitoba Hydro's Conawapa and Bi-Pole 111 projects.

The branch continued its role of assisting Municipalities and Planning Districts in the planning , management, and use of Crown natural resources.

Sustainable development activities and implementation plans continues to be a important task of the branch. Five potential ecological reserves were investigated and approved for inclusion in the program. In addition, 20 potential voluntarily protected areas were investigated, with 15 covering some 900 hectares approved.

Co-ordination of the Endangered Species Program was transferred to the Wildlife Branch.

The branch co-ordinated the Department's role in the development of a enhanced process of licensing resource based tourism facilities.

Beginning in 1991, the branch will assume responsibility for this licensing function and proceed on the development of a new Resource Based Tourism Licensing Act.

Forestry.....

Forest Management activities during the year included Geographic Information inventories covering several forest zones and the Repap Manitoba FML area, co-operating on a research project - Boreal Ecosystems Atmosphere Study, Growth and Yield projects in 14 different Forest Management Units and extensive Forest Cover Mapping and photo interpretation activities.

Silviculture regenerative treatments was carried out on 8,551 ha of forest land [planted, seeded and scarified]. As well, 503.2 ha were tended by thinning or herbiciding.

The forest pest control program involved aerial spraying of approximately 5,000 ha for spruce budworm, pest surveys, efficacy tests and establishment of sample plots for a number of insects and diseases.

Assistance was provided to Regional Services in the implementation of The Intelligent Fire Management System [IFMIS], a computer program used to predict fire activity.

Under Dutch Elm disease control, approximately 14,800 trees were marked for removal in rural areas and 11,088 trees in the city of Winnipeg. Under the elm replacement program, approximately 4,000 green ash and basswood were planted in Winnipeg. Overall, the loss of urban elms remained below 2% in most communities.

Timber revenue decreased by 1.1% from the previous year. The forest industry continues to bring in approximately $500 million in direct and indirect benefits to the province.

Forest renewal activities included Nursery production of 13 million seedlings, reforestation of approximately 3,800 hectares of cut-over and burned forest land, 280 ha of stand improvements and surveys of 7,300 ha of planted areas.

The Canada-Manitoba Partnership Agreement in Forestry was signed on March 25, 1991.

Water Resources.....

Continuation of dry conditions had a significant impact on Water Rights administration. In situations where

potential demand exceeds dependable supply, changes to water allocation methodologies were made via the establishment of local Advisory Boards.

Activities of Water Management Services included the monitoring and operation of 107 provincially owned dams, the Red River Floodway, Portage Diversion and the maintenance of 4,320 km of provincial waterways. Respecting developments in areas subject to flooding and erosion, 500 subdivision applications and 80 development plan and zoning by-law amendments were reviewed. Also 154 Environment Act proposals were reviewed.

During the year a joint program with Government Services to inventory all flood-proofing measures in the Red River Valley constructed after the 1966, 1974 and 1979 floods was initiated.

In the fall of 1990, Phase One of the Washow Bay Drainage Project was completed at a total project cost of $1,138,000. Phase Two, signed in 1989, will result in improvements within the Okno Drain area at a estimated cost of $2,611,500 over a seven year period. Costs for the projects are shared between the province and the R.M. of Bifrost.

Expansion of the Jackson Lake by approximately 90% capacity was completed under the Canada-Manitoba Agri-Food Agreement [total cost - $530,000]. Under the same Agreement, Stephenfield Lake was expanded by 20% capacity [total cost - $135,000].

Work continued on the Pasquia Polder 111 Project with the reconstruction of approximately 4.0 km of channel on the Pasquia Lake Drain at a cost of $251,000.

The Pelican Lake Enhancement Project under the Canada-Manitoba Agri-Food Agreement was initiated with expected completion in 1991 or 1992 [estimated cost - $600,000].

Work continued on the Carman Flood Protection Diversion with construction expenditures of $3,004,210 of which the Province's share was $901,260.

Dyke upgrading work was carried for the following communities; St. Adolphe, Emerson, Ste. Rose du Lac and Dominion City.

The Dauphin Lake Basin Advisory Board submitted to the Minister a initiative package for the enhancement of the Dauphin Lake basin. This was accepted and work is now underway on preparing a draft management plan and public awareness campaign.

Field investigations and technical evaluation of the Winkler Aquifer was completed along with continued monitoring in all other major groundwater development zones in Manitoba.

The maintenance of provincial water control works along with reconstruction, where required, resulted in expenditures of $3,786,891 and $1,307,006 respectively. Repairs to bridges over provincial waterways amounted to $675,428 during the year.

Wildlife.....

Ongoing 1990 Management initiatives included participation in the development of a Federal Wild Animal and Protection Act, planning process for the proposed Churchill National Park, implementation of the North American Waterfowl Management Plan and co-management of wildlife resources with aboriginal peoples. Other priorities addressed included the signing of the management agreement with Ducks Unlimited for the conservation centre at Oak Hammock Marsh, initiation of a Wildlife Management Strategy for the 1990's, and participation in meetings and working sessions of the International Association of Fish and Wildlife Agencies, Manitoba Habitat Heritage Board, the Wildlife Ministers Council and the hosting of the Federal/Provincial Wildlife Director's Conference in Winnipeg in June 1990.

In 1990, there was a total of 59,817 big game hunters as compared to 57,484 the previous year. Game bird hunters numbered 28,527 residents and 4,473 non-residents, as compared to 29,719 and 5,273 respectively for 1989. Non-resident big game and bird hunters generate an estimated $3.0 million in related economic activity in the province.

The revitalization of moose populations in GHA 8 and 20 continued to be a cooperative management challenge for the branch and aboriginal people. Efforts were successful enough to warrant a limited/controlled hunting season in 1990.

Joint planning continued with Ontario and the aboriginal communities of Fort Severn and Shamattawa on the development of the Pen Island caribou herd management agreement, for ministerial approval in 1991.

In an effort to improve the sustainability of black bear populations in the Duck Mountain area harvest quotas were reduced by 26%. Primarily because of the quota system, non-resident bear hunting numbers have stabilized at approximately 1,000 licenses per year.

The following compensation payments were made re Wildlife Damage Control: $91,210.00 for deer and elk damage, $15,680.11 for black bear damage and 40 grants of $100.00 each to beekeepers who installed bear-proof electric fences.

Habitat conditions for breeding waterfowl in southern Manitoba was enhanced due to normal and above normal precipitation in the fall of 1989 and spring of 1990. Despite some of the best waterfowl hunting opportunity in North America, the number of resident waterfowl hunters continued to decline, a drop from nearly 50,000 in 1978 to less than 25,000 in 1990. The year's duck harvest decreased to 112,000 ducks, the lowest on record, while the harvest of geese remained relatively stable at approximately 125,000.

Educational projects of the branch included National Wildlife Week- "Habitat Today For Wildlife Tomorrow", the wildlife environmental education training program - "Project Wild", a project to develop wildlife viewing opportunities - "Watchable Wildlife", and seasonal naturalists programs at Oak Hammock Marsh and The Narcisse Snake Dens.

The Lake Francis Wildlife Management Area was established and Fire Management Plans developed for three other WMA's.

A five year cooperative project with three other organizations was initiated to develop a habitat-based process to facilitate the integration of forestry and wildlife management plans.

In its second year, The Critical Wildlife Habitat Program secured some 6 150 acres of habitat under Agreements with landowners, acquired four parcels totalling 1,025 acres, negotiated agreements to acquire 480 acres from Conservation Districts and carried out 9 habitat management/enhancement projects.

In its fifth year, the Habitat Enhancement Land Use Program continued its unqualified success of innovative habitat securement and enhancement. Also, under the Heritage Marsh Program, development work was initiated at Whitewater Lake and Delta Marsh along with the planning process for eighteen other marsh projects.

Over 10,000 big game survey questionnaires, covering 45 season/species types, were sent to an estimated 50,000 hunters, with return rates from 54% to 100%.

A survey to determine the use of islands in Lake Winnipeg by colonial nesting birds was conducted and a policy drafted regarding their control. In Great Gray Owl research, 80 birds were captured and banded and 139 nest structures checked for evidence of breeding owls. The first release of Peregrine Falcon outside of Winnipeg took place in Brandon where five birds were released from the roof of the McKenzie Seeds building. Manitoba trappers harvested $1.0 million worth of fur in 1990/91, one-half million less than last year.

The success to date of "Co-management" has set the stage for this strategy to be implemented province-wide as a means of resolving wildlife management concerns via involvement of aboriginal people at the local / community level.

Engineering and Construction.....

The Design Section was involved in 193 projects of which 84 were plans and specifications, and 109 were investigations and reports.

The Geotechnical Section conducted 39 investigations and reports on such projects as sewage lagoons, as well as 23 provincial dam inspections and reports.

The Maintenance Section completed 24 operations and maintenance manuals designed to improve flood pumping reliability.

Major waterway construction projects for Water Resources Branch involved 'Barickman No.2 Drain Diversion', 'South Shannon Creek', 'Rivière aux Marais', 'Carman Diversion', 'Community Pasture Drain', 'Dubas Drain', 'Ben Johnson Drain', 'Washow Bay Drain', 'Fish Line Drain' and 'Swan Creek'.

Under the Bridge Replacement Program projects were carried out at Long Lake Drain, Tourond Creek, 'Chortitz Drain', Youville Drain, Main Drain, 'Oneschuk Drain', Wilson River, Jarosz Drain, Fishtown Creek, 'St. Joseph Drain', McCoys Creek and 'Scott Drain'.
Note: 'name' denotes unofficial name.

A variety of engineering services was provided to Conservation Districts which includes drainage surveys, water storage investigations, resloping and clean-outs of drains and runways, culvert installations and construction of drains and dams.

Projects conducted for Parks Branch include construction of a sea wall at Winnipeg Beach, and at various other park locations: 10 water and sewage projects, 4 road upgrading projects, 4 campground building projects, expansion of Paint Lake Marina and 40 engineering surveys/investigations.

Besides other Natural Resources Branches, engineering

services were also provided to Northern Affairs and Rural Development.

The final year of a survey/study on the flood protection levels of buildings in the Red River Valley Flood Designated Area was completed for the Manitoba Disaster Assistance Board.

Regional Services.....

In 1990, Manitoba recorded 570 forest fires, down considerably from the 1989 record number of 1,147. Also, 16,365 hectares of forested area was burnt, one of the lowest annual losses on record.

Several enhanced Fire Program initiatives were implemented during the year.These included a new Alert Response System and Air Attack Program, redesign of the Provincial Forest Fire Centre, additional initial attack crews for Helitac and Firetac Programs, an expanded Emergency Firefighter Certification Training Program, and the establishment of a toll-free Report Forest Fires telephone number in conjunction with the Turn In Poachers program.

Prosecutions and written warnings issued for resource related violations was up slightly from the previous year. A total of 3,079 prosecutions were initiated with 86% resulting in convictions. In addition, there were 1,881 written warnings.

There were 3,292 Problem Wildlife occurrences reported to the Department in 1990-91, compared to 2,568 in 1989-90.

The number of Hunter and Firearm Safety Training program graduates rose to 2,720 as compared to 2,479 the previous year. Similarly, the number of Guide Licenses went up to 883 from 803.

The Turn-In-Poachers program enjoyed continued success with 166 charges and 15 warnings generated from 745 telephone calls.

In 1990, a "Decoy Program" using deer, moose and elk decoys to assist in the apprehension of persons involved in illegal poaching activities was implemented, resulting in approximately 100 charges.

Section 2

Introduction

Manitoba Natural Resources is responsible for the protection, conservation, management and development of Manitoba's forests, fisheries, wildlife, water, parks and Crown land. Through the management of these resources, the department makes a significant contribution to economic development, creates jobs, provides recreational opportunities and ensures that the basic needs of subsistence users are met. It also provides protection from floods, wildfires and other adverse effects of natural resources.

The department includes six branches with clearly defined resource management responsibilities. They are Fisheries, Forestry, Lands, Parks, Water Resources and Wildlife branches. Operational and support services are provided by Regional Services, Engineering and Construction, Surveys and Mapping, Administrative Services, Resource Integration, Special Programs, Sustainable Development, and Enforcement and Legislative Services.

The following report highlights the activities and accomplishments of Manitoba Natural Resources for the fiscal year 1990-1991.

Section 3

Administrative Services Division

Minister's Salary and Executive Support

The objectives of the executive support group are to manage the department effectively to ensure that the natural resources of the province are used, managed and protected in such a way as to ensure sustained viability for the benefit of future generations; and to manage and allocate the natural resources to maximize the long-term social and economic benefits to the citizens of Manitoba.

Table AS.1
Expenditure by Sub-appropriations 12-1(a) (Minister's Salary) and 12-1(b) (Executive Support)

1(a) Minister's Salary 1(b) Executive Support	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	280,100	7.00	272,700	7,400	
Total Other Expenditures	104,100		107,700	(3,600)	

Financial Services

The objectives of the Financial Services Branch are to provide effective financial support services to the departmental executive, program managers and operational staff; to provide a comptrollership function on behalf of the Minister, Department of Finance and Treasury Board; and to ensure that the public has convenient access to the purchase of hunting and fishing licenses.

In 1990/91 the Licensing Section distributed and sold 94,513 hunting licenses, 175,821 fishing licenses, 61,743 wildlife certificates, for both residents and non-residents through 755 private and 71 departmental vendors throughout the Province. Additionally, 6,535 trapping licenses were sold to residents. Vendor activity during the year included 84 new appointments, 97 discontinuances, 48 suspensions of privilege and 27 reinstatements. Of the 755 private vendors, 681 are located in rural Manitoba.

A computer based public draw was again used to allocate 3,199 licenses for special limited hunting opportunities for residents of the Province. 6,633 residents applied for 3,587 licenses for elk, moose and caribou hunts.

The Disbursement and Contract Administration Section processed approximately 50,400 payments being made from some 290,000 documents, totalling approximately $48,500,000.

The Revenue Management Section handled approximately 79,000 separate transactions from 186 separate revenue sources, totalling $51,848,383, of which approximately 71,500 transactions were over-the-counter transactions totalling approximately $13,200,000. The Section received 97 NSF cheques totalling $15,585.59. Of these, 64 cheques for $9,149.36 were recovered during the fiscal year, leaving $6,436.23 outstanding.

The Revenue Management Section implemented the acceptance of credit cards from campers at Birds Hill Provincial Park. This was the first time a provincial department had accepted credit cards for payment and is being used as a test case for the province.

The Budget Services Section implemented

improvements to the automated budget and cashflow system which enabled the Section to improve the response time for completion of the budgetary, cashflow and reporting requirements of the Department, which proved to be particularly effective during the extremely condensed budgetary process undertaken for the 1991/92 estimates preparation.

Table AS.2
Expenditure by Sub-appropriation 12-1(d) (Financial Services)

1(d) Financial Services	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	920,900	31.04	941,300	(20,400)	
Total Other Expenditures	213,300		220,500	(7,200)	

Human Resources

Payroll Services

Human Resources Branch provided services to the Department in areas of recruitment and staffing, payroll services, classification, collective agreement interpretation, grievances, training and development, safety and health, workforce adjustment, employee counselling, decentralization, affirmative action, and French language services.

CHRIS (Computerized Human Resource Information System)

Enhancement and ongoing conversion of an automated human resource/payroll information system from mainframe to micro application continued. Expected results are greater report flexibility and cost efficiency.

TOTAL NUMBER OF EMPLOYEES COMPENSATED

Regular/Seasonal	3,546
Tree Planter	193
Emergency Fire Fighter	2,306
* 406 new appointments	

Personnel Services

The Department of Natural Resources, in consultation with the Civil Service Commission developed and implemented a pilot program in government for reviewing job classifications by committee, the intent being to enhance awareness and understanding of the classification process by Natural Resources staff. This Committee consists of five senior managers and is co-chaired by Human Resources and the Civil Service Commission.

Career Symposium

For the 11th year, Manitoba Natural Resources participated in the Career Symposium at the Winnipeg Convention Centre by providing information to students about the potential for employment with the Department.

Figure AS.1
Classification Reviews

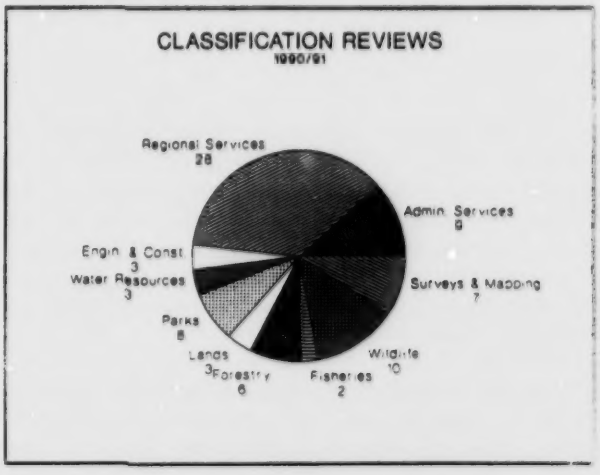
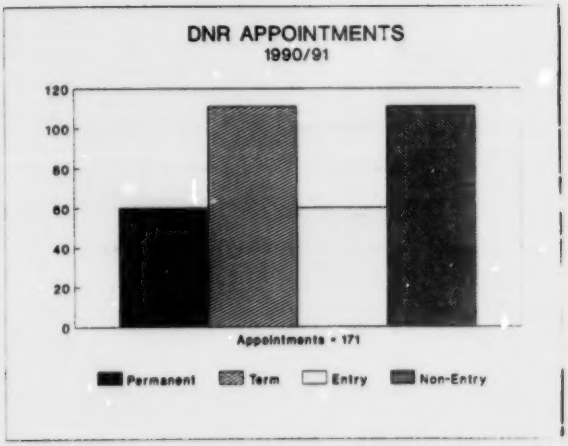


Figure AS.2
Appointments



Decentralization

The Branch assisted with relocation of 17 positions to rural Manitoba under the Government's decentralization program.

Table AS.3
Miscellaneous Employment Records

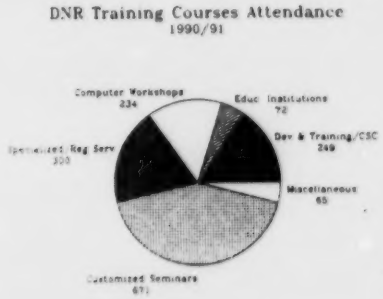
Formal Grievances	21
Selection Appeals	1
Retirees Honoured at Annual Dinner	13
25-Year Service Employees Honoured	19

Training and Development

During the 1990-91 fiscal year, 1,612 staff attended training workshops for a total of 2,230 days - a departmental average of 2.01 training days per employee. Natural Resources planned and delivered internal customized seminars on:

- Risk Management (using Satellite Transmission)
- Sexual Harassment Policy Training
- Effective Meetings and Time Management
- Transforming Stress into Power
- Career Exploration
- Resume Writing
- Preparing for the interview
- Employee handbook re: workforce adjustment

Figure AS.3
Attendance at DNR Training Courses



Computer training increased by 84% overall from 108 to 202 participants, with the majority upgrading their skills in *WordPerfect*. The highest participation was in workshops on Sustainable Development, Effective Performance Management, Essentials of Supervision, Firearm Training, and Communicating with the Native Public.

Resource Focus

The Resource Focus newsletter featured articles and photographs on the Department's 60th Anniversary Celebrations, the Corporate Challenge and introduced the Wellness in the Workplace Program. A "Risk Management" column was added which addressed issues raised at a departmental workshop and updated DNR staff on its development.

Occupational Health and Safety

In an effort to reduce lost time due to accidents, emphasis was focused on the development of safety committees and workplace inspections in order to make employees more aware of risks and potential hazards, as well as to identify steps that can be taken to eliminate them.

Table AS.4
Occupational Health and Safety Activities

Training sessions conducted	21
Employees trained	413
Formal inspections	90
Visits/Informal Inspections	60

Table AS.5
Expenditure by Sub-appropriation 12-1(e)(Human Resources)

1(e) Human Resource Management	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	997,400	27.00	977,900	19,500	
Total Other Expenditures	166,100		169,400	(3,300)	

Systems Services

The goal of Systems Services section is to provide support to the Department in the analysis, design and implementation of information processing systems. The section performs feasibility studies at the request of client groups and provides them with an assessment of the existing situation and recommendations for improvement. The section provides technical services in the maintenance and modification of existing systems and end user support. The section coordinates the preparation and monitoring of the Department's Annual Information Technology System Plan and coordinates the information technology procurement services.

In 1990/91 the section coordinated the acquisition of $710,277 worth of information systems software and hardware. Micro computer systems increased from a previous year base of 325 to 393 in the current year along with many terminals and work stations attached to mainframe and mini computer systems. This increase in micro computer resources required a corresponding increase in support of both the hardware/software and the users. This growing requirement takes increasing percentages of the section's resources. System plans and various communication within the department and with central organizations took 11% of the staff's time while traditional system development and support of existing systems took 35%. The remaining commitment of the staff's time involved administrative processes, providing an information resource, completing feasibility studies and sundry other responsibilities.

Some of the systems that the section worked on in the past year are as follows:

- Maintaining and modifying multiple existing Systems
- CHRIS (Computerized Human Resource Information System)
- Fur Harvest
- Big Game Draw
- FMIS (Financial Management Information System)
- LAN (Local Area Network) expansion & support

The section continues to be instrumental in multiple installations of Local Area Networks, micro computer system installations of hardware and software, training and support of users and serving as a resource to the Department in the areas of information processing hardware, software and issues. The section serves the department in providing a central focus for the disseminating of information relating to system issues both from central agencies and from branches. In a very decentralized department it is important to maintain an area where the access to users, information processing professionals, management and

central agencies can all funnel information requests.

Focus in the next year will be completion of Phase I of CHRIS, further integration of local area networks, promoting information sharing and ensuring existing systems are maintained.

Table AS.6
Expenditures by Sub-appropriation 12-1(f) (Systems Services)

1(f) Computer Services	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	259,100	6.00	267,600	(8,500)	
Total Other Expenditures	40,600		40,600	0	

Operational Support Services

Operational Support Services are responsible for coordinating the department's support services to ensure the effective and efficient use in areas of communication, office and storage accommodation, employee housing, clothing, office equipment, inventories, insurance, vehicles, warehousing, library services and records management.

Library Services, used by department staff, other departments, academics and the general public, has holdings of 15,500 books, 35,500 reports and current periodicals.

The section coordinated the department's responses to 33 requests filed under the Freedom of Information Act. Access was granted in 28 cases, two were granted partial access, one case was denied and two requests were withdrawn.

Inventory records indicate the department's assets and stores at $36 million and building inventory at over $10 million. The section registered 1,500 vehicles, all-terrain vehicles and snow machines, and monitored the use of approximately 225 credit cards.

Table AS.7
Expenditure by Sub-appropriation 12-1(g)(Administrative Services)

1(g) Administrative Services	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	696,800	20.39	747,100	(50,300)	
Total Other Expenditures	117,900		122,400	(4,500)	

Internal Audit

The goal of Internal Audit is to provide the management of the Department with assessments, observations and recommendations on matters concerning the various aspects of management and operations within the Department. To provide these services to management, the Internal Audit function is segmented into four categories: Major Audits, Minor Audits, Special Projects, and day-to-day, continuing and annual audits.

The scope of the reviews and audits carried out cover: assessments of compliance with departmental and government policies, directives, legal and regulatory requirements; reviews of the effectiveness of internal controls and asset protection; assessments of the effective and economic use of resources by way of "Comprehensive" audits which include a review of the

goals and objectives of the area under review, and special projects requested by management.

In 1990/91, Internal Audit completed one (1) Major Audit, completed five (5) Special Projects, and spent one (1) staff person year on day-to-day, continuing and annual audit requirements. The results of all completed audits are presented in a final report addressed to the Auditee. This final report contains the findings and recommendations put forward by the Internal Audit section along with comments, from the Auditee in response to a Draft Report prepared for discussion purposes.

In comparing the actual activities carried out by th Audit section with the approved Annual Plan fo Internal Audit for the 1989/90 Fiscal Year, Interna Audit initiated all but two (2) activities in all categories The two (2) not initiated were the direct result of ou staff vacancy. When our vacancy was filled, the nev staff member initiated day-to-day, continuing an annual work that was required but had not yet bee performed. Much of this work was completed by th end of the Fiscal Year.

Table AS.8
Expenditure by Sub-appropriation 12-1(h)(Internal Audit)

1(h) Internal Audit	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	136,600	3.13	159,400	(22,800)	
Total Other Expenditures	8,700		9,400	(700)	

Risk Management

The goal of the Risk Management program is to take a proactive approach in the prevention of accidental losses to people, property and programs so that the department's mission and roles are achieved and human and financial costs are reduced.

On May 15, 1990, approximately 500 staff were given a one day training session in 15 locations using the Manitoba Distant Education & Technology, Manitoba Satellite Network. The Honourable Harry Enns introduced the session on "Risk Management; A Beginning" stating that "... we are concerned with loss of lives, property damage and mishaps... We want to do something to change the situation right from the front line workers to supervisors and managers..".

The workshop resulted in increased staff awareness of what risk management is and what their responsibilities are.

Using **Resource Focus**, four articles on ri management were written including Liability Negligence, and Occupiers Liability & Signs.

A Risk Management Steering Committee was forme chaired by the Executive Director, Administrati Services Division with Director level membership fro three operational branches and from Insurance & Ri Management Branch, Finance. Through secondment a staff resource from Parks Branch in January, 199 a technical and support services to the committee a development of a Risk Management policy, procedur and a departmental Risk Management program ha been initiated. A draft policy has been reviewed by branches.

Six site specific risk assessments were complete Other activities included participation in two Par Branch task teams to develop processes for inspecti and maintaining facilities while minimizing risks.

Section 4

Resource Integration Branch

Resource Integration Branch is the Department's focal point for achieving sustainable development of natural resources through integrated management.

The Branch engages in

- economic evaluation and analysis; environmental review and assessment of development proposals and environmental conditions;
- co-ordinating management of Crown lands and other resources;
- establishing and administering ecological reserves;
- review and licensing of resource-based tourism facilities; and,
- developing legislation and policy to achieve integrated resource management.

Specific responsibilities include:

The Branch provides economic input and analysis, in the form of feasibility studies, impact statements, cost/benefit analysis, user surveys, fee and revenue proposals, and performance evaluation reports and manuals.

Management of the Department's environmental review and assessment of all development proposals registered under The Environment Act throughout the Province, and co-ordination of preparation of the provincial State of the Environment Report.

Co-ordination of Departmental and interdepartmental Crown land use management and planning, Crown land sales, exchanges, and other dispositions, and resolution of policy, procedure and other issues affecting Crown lands, by the administration of the Crown Land Classification Committee.

Exercising the Department's responsibility for the management of Crown natural resources by supplying integrated information to assist in local planning and community development, and for other purposes.

Secretariat support for the Department's integrated resource management board, which reviews all major resource management conflicts, and provides direction to the regional integrated resource management teams.

Implementation of Ecological Reserves planning, designation and administration, and Departmental particpation in the preparation of reports and studies in the furtherance of the province's objectives for sustainable development.

Co-ordination of Departmental review of licensing of resource-based tourism facilities, including all lodges and outfitters.

Economic Evaluation and Analysis

Monitored the implications to the Department of trade issues including the softwood lumber countervail.

The Branch co-ordinated the planning for the 1991 Park Visitor Survey, and completed a survey of Grand Beach cottagers which measured their interest in funding a new water supply system.

The Branch completed a major review of water programs and engineering services provided by the Department.

With respect to wildfire suppression, the Branch evaluated the implementation of the new Forest Fire Initial Attack Response system, and developed a Fire Load Index which measures the severity of fire seasons, to be used in evaluating the effectiveness of the program. A new form of contract was drafted for the cost-sharing of fire program activities related to Indian Reserves.

Environmental Review and Assessment

The Branch reviewed all Environment Act development proposals, approximately 300 per annum, and ensured that the Department's requirements were met prior to the issuance of the environmental licence. Additionally, the branch coordinated the Departmental review of all major resource developments, including Forest Management Plans and Hydro developments such as Conawapa and Bi-Pole III.

The Branch played a major role in preparation of the 1991 State of the Environment Report through co-ordination of the Department's input and liaising with Manitoba Environment.

Crown Land Use and Management

The Branch provided management support for the Crown Land Classification Committee. As secretariat to the Committee, the Branch, in conjunction with regional Bloc Planning Committees, maintained and administered the system of operational coding on

Crown land, and prepared Provincial Crown Land Plans. As secretariat to the Committee, the Branch also administered the system of review and determination on the disposition (sale, exchange, Order-in-Council areas) of Crown lands, as well as the formulation of policy and procedure for other issues involving Crown lands. The Committee reports to the Provincial Land Use Committee of Cabinet.

Resources Management and Community Development

The Branch assisted in the planning, management and use of all Crown resources (wildlife and fish, surface and ground waters, minerals, outdoor recreation and ecological resources, Crown lands) by co-ordinating the preparation of reports for Municipalities and Planning Districts, compiling annual maps of Crown lands, and otherwise responding to requests for studies, maps, and statistical compilations required to properly allocate these resources.

Sustainable Development

The Branch actively participated in the development of the Forestry, Public Sector, Demonstration Projects, Sustainable Development Core Document, Minerals, Energy, Market Incentives and Fiscal Policy, and Codes of Practice sustainable development strategies and the Water Strategy Implementation Plan.

Ecological Reserves and Significar Areas

The Branch is responsible for the Ecologica Significant Areas Program which is composed of tv related parts; ecological reserves and voluntar protected areas. Five potential ecological reserv representing typical Manitoba ecosystems we investigated and approved by the Ecological Reserv Advisory Committee for inclusion in the progra Formal establishment of these ecological reserves is c going. Twenty potential voluntarily protected are were investigated, fifteen, totalling some 900 ha, ha been brought into the program through agreement w the owner/administrator. The remaining areas did r meet program requirements.

Co-ordination of the Endangered Species Program w transferred to the Wildlife Branch.

Resource-Based Tourism Licensing

The Branch co-ordinated and integrated t Department's contribution to the process of licens of resource based-tourism facilities. Beginning 1991, the Branch will assume full responsbility for t licensing function, and will develop a new Resou Based Tourism Licensing Act to enable more effect management of the Province's resources.

Table RI.1
Expenditure by Sub-appropriation 12-1(c) (Resource Integration Branch)

1(c) Resource Integration	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	626,000	14.00	624,300	1,700	
Other Expenditures	46,700		50,500		
- Grants/Transfer Payments	5,000		5,000		
Total Other Expenditures	51,700		55,500	(3,800)	

Section 5
Engineering and Construction Branch

The mission of the Engineering and Construction Branch is to provide engineering services and be capable of responding to flood emergencies.

The branch provides engineering investigations, preliminary and detailed designs, surveys, project management services and related support services for all branches of the department, and to municipalities, conservation districts, and other government agencies. The types of works include drains and crossings of provincial waterways, dams, erosion-control works, water distribution and supply systems, sewage collection and disposal systems and a variety of structures such as pumphouses, shower buildings, greenhouses, cold storage buildings, etc. The branch also operates and maintains the provincial flood control facilities, such as diversions and dykes; co-ordinates all flood-fighting activities, and assists the Manitoba Diaster Assistance Board with restoration works and claims from the public.

Table EC.2
Contract Management

Rental Agreements	186
Contractors	13
Construction Orders	32
Hay Permits	504

Table EC.1
1990 - 1991 Program Summary

Client	Expenditure (000's)
Conservation Districts	1,364.8
Forestry Branch	.1
Parks Branch	951.2
Water Resources Branch	7,657.9
Wildlife Branch	49.8
Regional Services	24.3
Total	10,079.6

Administration

The Administration Division provides administrative support services to enable the branch to deliver the necessary engineering and construction works as requested by clients. These services include contract negotiations and administration, accounting operations, yard inventories, vehicle co-ordination, payroll/ personnel administration, secretarial services and project control services all of which help improve work planning/scheduling, resource management and programs reporting.

Table EC.3
Expenditure by Sub-appropriation 12-3(a) (Administration)

3(a) Administration	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	524,700	15.00	585,100	(60,400)	
Total Other Expenditures	183,300		216,100	(32,800)	

Technical Services

The Technical Services Division provides structural design, hydraulic design, sewer and water design, geotechnical engineering, construction inspection and consulting services. Soils laboratory services are also provided by the Geotechnical Section.

The Design Section was involved in 193 projects of which 84 were plans and specifications, and 109 were investigations and reports. Of the 84 design and specification assignments seven were performed using total station and computer aided drafting equipment. These assignments were for various clients and included projects for outside agencies such as the Department of Northern Affairs, conservation districts and municipalities. Ongoing work was carried out on

Pelican Lake regulation, Pasquia Polder III, the Codnor Drain and Barickman Coulee. Work was completed on the plans for the Gimli Diversion. The water systems and sewage treatment systems in Provincial Parks are upgraded on a continuing basis. A manual for the design of small dams, prepared during the year, will be used for those to be constructed throughout the agricultural area of the province. The Geotechnical Section provided soil mechanics and foundation consulting services for various projects. During the year the section conducted 39 geotechnical investigations and reports, on such projects as sewage lagoons, as well as 23 provincial dam inspections and reports. Foundations were designed for various proposed structures, and reports were prepared on the stability of dykes and riverbanks. The section inspected construction sites of projects. The geotechnical laboratory ran tests for various clients throughout the government for a statement value of $126,582.00.

The Maintenance Section continued work on improvi the maintenance capability of the department. S operations and maintenance manuals have be completed, as have three sets of record drawings f sewer and water systems in Provincial Parks. improve flood pumping reliability, 24 operations a maintenance manuals have been completed.

Table EC.4
Geotechnical Dam Inspections an Reports

Water Resources Branch	23

Table EC.5
Design Projects and Reports Completed

Agency	Design Plans/ Specifications	Investigations/ Reports
Conservation Districts	15	22
Dept. of Northern Affairs	1	0
Municipalities	15	22
Forestry Branch	1	0
Parks Branch	19	17
Regional Services Branch	0	1
Water Resources Branch	32	45
Wildlife Branch	0	1
Fisheries Branch	0	1
Dept. - Government Services	1	0
Total	84	108

Table EC.6
Geotechnical Investigations and Reports

Conservation Districts	5
Government Services	1
Parks Branch	15
Forestry Branch	1
Water Resources Branch	15
Department of Environment	2
Total	39

Table EC.7
Geotechnical Laboratory Tests

Department of Agriculture (MWSB)	81
Department of Highways	6,610
Department of Natural Resources	2,429
Department of Environment	12
Total	9,142

Table EC.8
Maintenance Management

Branch	Emergency	Repair	Consultation
Other	2	5	11
Parks	27	44	35
Water Resources	6	11	10
Total	35	60	56

Table EC.9
Expenditure by Sub-appropriation 12-3(b) (Technical Services)

3(b) Technical Services	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	1,622,300	41.00	1,660,100	(37,800)	
Total Other Expenditures	91,600		97,400	(5,800)	
Total Recoveries	(81,900)		(55,000)	(26,900)	

Regional Engineering Services

This division of the branch carries out construction, project management, surveys, engineering investigation and analysis in support of implementation of studies, and capital and maintenance programs. In addition, this division is responsible for the operation and maintenance of the flood-control systems and for flood-fighting activities, damage assessment and repairs.

Interlake Region

The Interlake Region, encompassing an area of approximately 2,072,000 ha, is bounded on the east by Lake Winnipeg, on the south by the Assiniboine River, on the west by Lake Manitoba, and the vicinity of Cedar Lake on the north. The agricultural portion of the region is divided into 18 watersheds.

Programs and projects undertaken for various clients served by the region are as follows.

Water Resources Branch

Surveys and Investigations. The region completed 42 surveys and investigations for specific services for this branch. These services involved investigation, preliminary and construction surveys, and construction staking for both provincial waterways and municipal drains.

Maintenance and Operation. The maintenance program covered provincial waterways in 18 watersheds totalling 1,483 km (927 miles) and 1,171 structures, including 11 dams.

Flood Damage Reduction. The region maintained and operated the Portage Diversion and the Lake Winnipeg Dykes. This work included major repairs to the Assiniboine River control structure as well as general maintenance and repairs to the diversion channel, dykes and control structures.

Engineering and project management services were also provided for the Gimli Flood Protection Project. Construction was completed on the diversion channel in section 4 and 8-19-4E. Also a concrete box culvert was completed thru P.T.H. #9.

Waterway Construction. During 1990/91 the region coordinated and implemented four waterway projects.

'Ben Johnson Drain'. Installed culvert thru P.T.H. #8 on upper end of drain.

'Washow Bay Drain'. Purchased right-of-way for 10 km of channel scheduled for reconstruction in 1991-1992 in sections 6 and 7-25-3E, 23, 24, and 25-24-3E, and 31-24-4E.

Fish Line Drain. Purchased culverts for crossing thru Canadian National Railways to be installed in 1991/92.

Swan Creek. Reconstructed 3.2 km of channel in sections 30 and 31-19-5W.

Note: 'name' denotes unofficial name.

Bridge Replacement Program. The region was responsible for the replacement of one bridge with a temporary culvert crossing at Long Lake Drain SE ¼ 12-13-4W.

Culverts were purchased for future installation at the following locations:

Long Lake Drain	SE ¼ 12-13-4W
Willow Creek	NE 25-18-3E
Kilkenny Drain	E 3-24-3W

Also a Geotechnical investigation and temporary repairs to a superspan on the Iceland River were made N 1-23-1W.

Wildlife Branch
Construction. Reconstructed approximately two km of channel East of sections 9 and 4-16-4W. Purchased culverts to be installed in 1991/92.

Maintenance and Operation. The region successfully completed a maintenance program in Oak Hammock Marsh.

Parks Branch
Surveys and Investigations. The region completed one survey and two investigations.

Construction. Constructed a sea wall and three groins at Winnipeg Beach NW 34-17-4E.

Forestry Branch
Construction. Removed beaver dams in the off-take drains from the Kinwow Bay forest tote road in Twp. 31-1E.

Eastern Region

The Eastern Region is east of the Red River, east of Lake Winnipeg and extending north through Ponton and Lynn Lake to Churchill, then east to the Ontario border and south to the United States border.

Water Resources Branch
Surveys and Investigations. The region responded to specific requests for service.

Maintenance and Operation. A maintenance program was completed covering 1,147 km of provincial waterways in 20 watersheds, including 17 provincial dams.

Flood Damage Reduction. The region maintained and operated the Red River Floodway and Valley Town Dyking Systems at Emerson, Dominion City and St. Adolphe.

Also provided were engineering and project management services for two major construction projects, namely, the Emerson Dykes and the St. Adolphe Dykes.

Waterway Construction. During the 1990/91 fiscal year the region coordinated and implemented the reconstruction of 2¼ miles of the Dubas Drain. This work completed the provincial waterway reconstruction of the Dubas Drain from P.T.H. #44 to P.R. 435.

Bridge Replacement Program. The region was responsible for the replacement of six timber structures with culverts, namely;

- Tourond Creek N of RL 624 - installed CSP's
- 'Chortitz Drain' N 2-7-5E - purchased and installed CSP's
- Youville Drain E 6-8-5E - purchased and installed CSP's
- Main Drain NE 1-16-8E - purchased CSP's
- 'W Drain' N 27-14-8E - purchased and installed CSP's
- 'Oneschuk Drain' N 20-14-8E - purchased and installed CSP's

Conservation Districts
Engineering services provided to the Cooks Creek Conservation District (CCCD) were.

Surveys and Investigations. The region responded to 8 specific requests for service.

Maintenance Program. A maintenance program for three subdistricts involving from 1,000 km of CCCD board drains was successfully completed.

Construction Program: Culvert installations were undertaken at the following locations:

'North Bibeau Drain' NE 27-10-5E, N 27-10-5E and N 26-10-5E
'Sapton Drain' N 15-12-6E and NE 17-12-6E
'Melrose Drain' W 26-12-5E
Cooks Creek in 6-10-7E
'Zora Road Drain' NE 8-12-6E

'Oak Road Drain' N 20-11-7E, N 19-11-7E and NE 19-11-7E

The following CCCD Board Drains were reconstructed:

'Oakwood Road Drain' S 25-11-5E
'North Bibeau Drain' N 26 and 27-10-5E
'Sapton Drain' N 14 and 15-12-6E
'Blockers Drain' N 17 and 18-10-6E and W 20-10-6E
'Springfield Road Drain' E 8-11-5E

Note: 'name' denotes unofficial name.

Crown Lands
Surveys and Investigations. The region prepared cost estimates for road and other infrastructure improvements required for Blocks 1 to 5 of the Pinawa Bay Cottage Subdivision.

Forestry Branch
Surveys and Investigations. The region responded to two specific requests for service, namely: estimating irrigation system modifications at Hillside Orchard and providing a culvert design for the Jackfish Creek crossing on the North Star Trail.

Municipal Services
Surveys and Investigations. The region responded to 11 specific requests for services initiated through Water Resources Branch on behalf of rural municipalities and local government districts within the Region. These requests covered resolutions pertaining to preliminary drainage investigations, drain construction surveys, designs and staking.

Parks Branch
The region conducted engineering investigations, and surveys, and provided construction management services for projects in Whiteshell, Grand Beach, Birds Hill and Paint Lake Provincial and Provincial Recreation Parks.

Surveys and Investigations. The region responded to 39 specific requests for services initiated by Parks Branch and for the Regional Services Branch.

Construction. During 1990/91 fiscal year the region coordinated and implemented 14 construction projects as follows:

Falcon Lake - watermain repairs
Nutimik maintenance building - completion
Big Whiteshell Lake - cottage subdivision road upgrading
Falcon Lake - water main flushing
Old Pinawa Dam Site - installation of well
West Hawk Lake - campground upgrading
Opapiskaw Campground - electrification
Falcon Lake south shore road - initial phases of seal coating
Brereton Lake - Invernass Falls road seal coating
Big Whiteshell Lake - access road asphalting
Brereton Lake - sewage lagoon construction
Paint Lake marina - upgrade and expand marina
Paint Lake - completion of sewage lagoon and foremain
Grand Beach - installation of septic field for staff housing project.

Southwestern Region

The headquarters of the Southwestern Region is in Neepawa, with a field office at Portage la Prairie. The region extends from Riding Mountain National Park to the north, the International Boundary to the south, Lake Manitoba to the east, and the Manitoba-Saskatchewan boundary to the west. Programs and projects undertaken for various clients served by the region are as follows:

Water Resources Branch
Pelican Lake Enhancement. Culverts, sheet steel and control gates were purchased in anticipation of 1991 construction.

Surveys and Investigations. The regions completed three surveys and four investigations for this branch.

Maintenance and Operations. The region successfully completed a maintenance program covering provincial waterways in five watersheds totalling 1.6 km and seven dams.

Bridge Replacement Program. The region replaced a bridge N 8-1-14W and installed ponding devices N 21-5-25W.

Conservation Districts
The Southwestern Region was responsible for providing a variety of engineering services to the Whitemud Watershed, Turtle Mountain and Pembina Valley Conservation Districts.

Surveys and Investigations. Over 50 drainage-related problems and 70 proposed water storage projects were dealt with.

Maintenance and Operations. Resloping and clean-outs were carried out on about 35 km of drains and runways. Mowing and spraying were carried out on over 300 km of drains and runways. Seven crossings

were upgraded or replaced.

Construction. Twelve small dams were built in the Whitemud Watershed Conservation District, and six in the Turtle Mountain Conservation District. Two major dams were built in the Turtle Mountain Conservation District, one in 6-3-20W and the other in 15-2-23W. Also completed were 1.6 km each of the Big Grass River and the Waldersee Drain. About 1.6 km of smaller drains were reconstructed.

Western Region

The Western Region is bounded on the south by Riding Mountain National Park, on the west by the Manitoba-Saskatchewan boundary, on the east by Lake Manitoba north of McCreary, and on the north to include the Flin Flon/Snow Lake area.

Water Resources Branch

Surveys and Investigations. The region responded to 15 requests from this branch for services. The region supported the Dauphin Lake Enhancement Project by collecting water quality sediment samples and stream flow metering at 22 sites established in the Dauphin Lake Basin.

Maintenance and Operation. The region managed a maintenance program including 648 km of provincial waterways in 17 watersheds, 180 structures, 22 dams and five pumping stations in the Pasquia Land Development area near The Pas.

Flood Damage Reduction. The region maintained and operated the Shellmouth Dam and Saskatchewan River Dykes.

The region continued to purchase land for Ste. Rose Flood Protection Project and maintained the works in a state of operational readiness.

Canada-Manitoba Agri-Food Development Agreement. The region constructed four km of the Pasquia Lake Drain and put into operation the fifth Pumping Station constructed in the Pasquia Land Settlement.

Waterway Construction. The region managed the reconstructure of 7.2 km of the Community Pasture Drain.

Bridge Replacement Program. The region replaced an unsafe bridge over the Wilson River E 29-25-19W with a three span precast concrete on steel pile structure. C.M.P. crossings were constructed as follows:

Jarosz Drain - E 29-36-24W
Jarosz Drain - E 32-36-24W
Fishtown Creek - NE 14-40-25W

Turtle River Watershed Conservation District

Surveys and Investigations. The region provided engineering assistance and related surveys in response to eight requests.

Maintenance and Investigations. The region maintained the Wilson Creek Weir and repaired washouts on the Amman Drain. The region inspected all structures in the Conservation District.

Construction. The region continued to co-ordinate the right-of-way purchase for the Hansen Creek project.

Alsona Conservation District

Surveys and Investigations. The region provided surveys and engineering assistance in response to five requests and finalized surveys on the Mellonville Drain project (43 km).

Parks Branch

The Western Region has provided engineering investigations, survey and construction project management services for a wide variety of projects.

Construction. The region provided engineering and project management services as follows:

Wellman Lake.

- Construct the primary cell of a future lagoon.
- Construct shower/washroom building.
- Upgrade water system.

Childs Lake. Septic field upgrade.

Overflowing River. Construct waste disposal grounds.

Clearwater. Construct access road and clear site for a lagoon at 'Oak Siding'.

Lands Branch and Fisheries Branch

The region provided engineering investigations, surveys and design in response to three requests for services from Fisheries Branch and two requests for services from Lands Branch.

Northern Affairs

The region provided engineering and project management services for the construction of the "Cuprus Mine" Lagoon at Bakers Narrows.

South Central Region

The South Central Region lies south and west of Winnipeg in some of the prime agricultural land in the province. The region is situated in the western half of the Red River Basin with tributaries such as Rivière aux Marais, the Plum, Morris, Boyne and La Salle Rivers flowing through the region into the Red River. Roughly square in shape, the region has an area of over 11,000 sq. km and is divided into 15 watersheds. On the south the region is bounded by the International Boundary, and to the east, north and southwest by the Red, Assiniboine and Pembina Rivers, respectively.

Programs and projects undertaken for various clients served by the region are as follows.

Water Resources Branch

Surveys and Investigations. The region completed requests for services. These involved preliminary and construction staking for both municipal and water resources surveys of some km of drainage work projects, crossing replacement surveys and various water investigations for both surface and groundwater.

Maintenance and Operations. The region completed the normal maintenance program on the provincial waterways network in 15 watersheds involving, meetings and discussions with the councils of 17 municipalities. The program included mowing, spraying, seeding, repairing structures on 798.7 km of provincial waterways with 320 bridges, 40 gradient control structures and 17 dams.

The maintenance and year-round operation of the Assiniboine/La Salle River Enhancement Project is an important item in this program. It involves the operation and maintenance of pumps at three sites on the Assiniboine River between Portage la Prairie and St. Eustache. The augmentation of flows is used for stock watering, irrigation for market gardens and for domestic use at Sanford. Control of beaver activity is a main function during part of the year. The installation of snow fencing prevents snow blockage of the river bed during the winter pumping operation.

Flood Damage Reduction. The region maintained and operated the West Dyke of the Red River Floodway and the Valley Town Dyking System at St. Jean Baptiste, Morris, Letellier, Rosenort and Brunkild. This involved the regular maintenance on some 59 km of dykes and the operation and maintenance of pumps that are an integral part of the interior drainage system of these towns. Dyke maintenance involved the planting, pruning and care for trees which dampen wave action during a major flood.

Waterway Construction. During 1990/91, the region coordinated and supervised four waterway construction projects.

- 'Barickman No. 2 Drain' Diversion in River Lots 87 thru 112 inclusive, in the Parish of St. Francois Xavier in the R.M. of Cartier. This is a continuation of construction from 1989/90. Constructed 4.7 km of drain with installation of both thru dyke and in line culverts.

- 'South Shannon Creek' in sections 2,3 and 4-4-4W in the R.M. of Roland. This was the first year of channel construction thru only section 2-4-4-W a distance of 2.3 km. The work included the construction of double dykes and thru dyke culverts.

- Rivière aux Marais in sections 4, 9, 16, 21, 22, 25 and 26-1-1E in the R.M. of Rhineland. This was the second year of construction. Work consisted of channel excavation through section 22-1-1E with the construction of three geo-web level crossings and one driveway access culvert crossing installation.

- 'Carman Diversion' in sections 25, 26 and 36-6-5W and 31, 32, 33, 34-6-4W of the R.M. of Dufferin. The right-of-way in sections 25, 26 and 36-6-5W was purchased. The P.F.R.A. supervised the contracts for the construction of the channel, one large gradient control structure and an inlet control structre in the Boyne River. Also two municipal bridges, a C.N.R. railway bridge and a P.T.H. highways bridge were built. This was the second year of construction on this project.

Bridge Replacement Program. The region replaced bridges with culvert crossings at the following locations:

'St. Joseph Drain'	NE 19-2-1E
McCoys Creek	N 3-3-10E
'Scott Drain'	E 15-10-4W
'Scott Drain'	E 15-10-3W

Also culverts were purchased and stored for future installation at the following locations:

Plum River	N 15-3-1E
'Bolen Drain'	NE 31-7-1E

'name' in single parenthesis denotes unofficial name.

Water Resources Administration Permits Program. Since September 1979, when the first permit was issued for construction of a building in the Red River Valley Designated Flood Area, the region has supplied a survey service to applicants. Prior to construction of a structure the applicant is contacted and arrangements are made to set a level at his/her site for the finished floor elevation.

Table EC.10 shows the services rendered in 1990-1991.

Manitoba Disaster Assistance Board

The South Central Region completed the second and final year of a study of the flood protection levels of buildings in the Red River Valley Flood Designated Area. Survey crews were able to obtain data for all the buildings in the municipalities of Rhineland, Franklin, De Salaberry, Macdonald, Ritchot, Hanover and part of the City of Winnipeg. This involved surveys of over 1700 farm sites, houses and businesses. The information should be very beneficial in times of flood when residents of the Red River Valley are building flood protection works.

Table EC.10
Water Resources Administration Permits Program

Permits Issued	58
Permits Requiring Survey Service	57
Permits on East Side of Red River	27
Permits on West Side of Red River	30
Compliance Surveys for 1990-1991 Permits	17

Note: As of March 31st, 1991, 648 permits had been issued since the program began in 1979.

Table EC.11
Expenditure by Sub-appropriation 12-3(c) (Regional Engineering Services)

3(c) Regional Engineering Services	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	3,795,100	106.13	3,823,300	(28,200)	
Total Other Expenditures	809,100			(220,900)	1
Total Recoveries	(35,600)		1,030,000	299,400	1
			(335,000)		

Explanation Number:

1. Funding provided for engineering services related to the construction of a sewage lagoon at Bakers Narrows was not utilized as the administration of the project was handled by the Department of Northern Affairs.

Section 6

Fisheries Branch

The mission of the Fisheries Branch is to ensure sustainable development of provincial fisheries resources for present and future generations of Manitobans.

The branch develops and implements fisheries management programs to provide the greatest benefits to Manitobans by maintaining or enhancing fish populations and habitat; by monitoring effects of harvest and habitat alterations on fish populations; and by allocating the fish resource to ensure the best return. The branch also administers the Northern Fishermen's Freight Assistance Program for commercial fishermen and provides direction and administrative costs for the Manitoba Fishermen's Loan Program administered by the Manitoba Agricultural Credit Corporation.

Administration

The Manitoba Fisheries Strategy, which provides direction for consistent and rational management of Manitoba fisheries, was revised in response to changing conditions of the fisheries. This document provides primary guidance to Fisheries Branch staff in their management actions and serves as a foundation in establishing a public understanding of fisheries management direction and rationale within the Province.

As a result of a Supreme Court decision of May 31, 1990 (R. vs Sparrow) which clarified the fishing rights of aboriginal people, both departmental policy and federal regulations were reviewed to determine consistency with Court interpretation of these rights. Adjustments were made to relevant policy and a comprehensive regulatory review was initiated with the federal Department of Fisheries and Oceans. This latter review is continuing and will result in amendments to the Manitoba Fishery Regulations which recognize the fishing rights of Treaty Indians.

Dialogue with user groups wishing a greater involvement in the resource management process has led to a better mutual understanding of how responsibilities can be shared and decisions made in a co-management arrangement between Fisheries Branch and appropriate user groups. Guidelines in this regard continue to be developed and elaborated. Contact and co-ordination with Fisheries Directors from central Canada and federal counterparts was facilitated through meeting of the Federal/Provincial/ Territorial Freshwater Fisheries Liaison Committee.

Table FI.1
Expenditure by Sub-appropriation 12-8(a) (Administration)

8(a) Administration	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	224,500	6.00	262,000	(37,500)	
Other Expenditures	48,400		45,700		
- Grants/Transfer Payments	6,00		6,000		
Total Other Expenditures	54,400		51,700	2,700	

Regional Management

The Regional Management Section manages fisheries in the six fisheries regions of Manitoba, within the scope of the branch's policies and strategies. This section is the primary delivery unit of sport, commercial, habitat and aboriginal fishing management programs. It functions as the main interface between users and the Fisheries Branch. Each region has a five year strategy, consistent with the branch's strategy

and government policy. Annual short term objectives evolve from this strategy.

During 1990/91 this section continued with the monitoring and assessment of fish populations, fishery use and habitat, and worked with user groups towards co-operative management. Major commercial fisheries were monitored and assessed, including Lake Winnipeg, Playgreen Lake, Lake Winnipegosis, South Indian Lake, Lake St. Martin and Cedar Lake. Annual reports on the status of these fisheries are being completed and will be available on request. Land use activities that impacted on aquatic environments were monitored to ensure the impact on fisheries was minimized or mitigated. Commitments under lake management plans such as Rocky Lake and Kississing Lake were met. Consultation on a variety of topics including regulations, management initiatives and stocking, was continued with all major user groups in the regions. Other ongoing activities included the administration and issue of commercial fishing licences, sport fishing derby permits and fish farming permits.

Table FI.2
Expenditure by Sub-appropriation 12-8(b) (Regional Management)

8(b) Regional Management	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Salaries		20.00			
Main Estimate			764,700		
Main Estimate Authority from General Salary Increase XXV			22,100		
Total Salaries	734,900		786,800	(51,900)	
Total Other Expenditures	254,300		245,900	8,400	

Fish Culture

Fish stocking programs developed by the Habitat Management Section are used as a tool to maintain and enhance provincial fisheries. As in previous years, stocking was used to create fisheries where natural reproduction is not possible or where infrequent winterkills occur, to introduce species to lakes to create new self-sustaining fisheries, and to provide variety in species for Manitoba's anglers.

In the spring of 1990, 87.4 million walleye eggs were collected from four spawn collection sites. Swan Creek was the primary source accounting for 65.6 million walleye eggs (75%). Walleye eggs were incubated at three hatcheries (at Swan Creek, Grand Rapids and Methley Beach) and produced a total of 58.1 million fry. An additional spawn camp was conducted at the mouth of the Lonely Lake Drain by the Alonsa Conservation District which produced 10.3 million eggs (9.3 million fry) which were incubated at the Methley Beach Hatchery. The overall survival from egg to fry was 77%. Of these fry 73% were allocated to commercial fishing stocking projects and 27% were allocated to sport fishing stocking projects.

As part of the Fish Culture Unit's austerity program pike were moved to Fort Whyte and other small ponds for free only on return mileage from trout distribution trips or if the site was close and the pike were captured incidentally at a walleye spawn camp. The pike were purchased by the local interest groups from the commercial fisherman involved in the pike removal project at Dauphin Lake and in total 1693 pike were moved this way. An additional 250 were moved by Fish Culture from walleye spawn collection sites.

The first full year of operation at Grand Rapids under the $90,000.00 Manitoba Hydro funding agreement was in 1990-91 and the province's other salmonoid hatchery at West Hawk Lake continued to operate. Tours were once again conducted by the Friends of the Whiteshell at the Whiteshell Hatchery and by hatchery staff at the Grand Rapids Hatchery.

Distribution of fish to sport fishing waters is presented in Table FI.3. In addition to fish produced by the Fish Culture Unit's hatcheries 2300 two year old and 1700 yearling rainbow trout were received from Department of Fisheries & Oceans (DFO) Rockwood Hatchery for stocking as were 6000 yearling walleyes. These fish were all stocked into sport fishing waters in the Southeastern part of the province.

Table FI.3
Distribution to Sport Fishing Waters from Fish Hatcheries, 1990-1991

Species	Fry	Fingerlings	Yearlings	2 Year Olds and Adults
Black Crappies	0	593	0	0
Brook Trout	0	36,000	7,800	175
Brown Trout	0	42,190	94,000	18,301
Lake Trout	0	329,934	270	0
Northern Pike	0	0	0	1,943
Splake	0	50,000	0	0
Tiger Trout	0	886	0	0
Rainbow Trout	0	0	26,014	51,335
Walleye	17,905,000	44,702	0	0

Fisheries Habitat Management

Fisheries enhancement activities within the Habitat Management Section serve to assess, maintain and improve fish habitat. In 1990-1991 new short-term projects were undertaken, and several large-scale projects were continued.

Studies to access the ecological impacts of hydro-electric development of the Churchill-Nelson River systems on fisheries resources, as mandated by Claim 18 under the Northern Flood Agreement, were continued in 1990-91. Preliminary reports on all information compiled during the five years of field investigations were completed; these included 35 data reports, five analytical studies and two manuals on sampling methodology.

An analysis of water quality conditions along the Churchill River Diversion route revealed that the influx of more dilute waters from the Churchill River has reduced the concentration of nutrients and other chemical constituents along the diversion as far downstream as Stephens Lake. These water quality changes have reduced the productivity of micro-scopic aquatic plants and animals in lakes influenced by the Churchill River diversion. Investigations are currently being undertaken to determine the affect of these changes in water quality and basic biological productivity on fish populations in the area. The studies will also include an analysis of the altered flow regimes and their influence on fish productivity.

Consultants to Manitoba Hydro began fisheries investigations to the Conawapa development on the Lower Nelson River system in 1990-91. Fisheries Branch staff provided some advice to the consultants in their design and planning of the field investigations. Fisheries Branch staff, in an advisory role, were involved in the design of stream crossings on the access road to the Conapawa sites. Staff were also involved with the Interdepartmental Technical Advisory Committee that was established to develop environmental impact assessment guidelines for the Conawapa development and the Terms of Reference for the joint federal-provincial Review Panel for Conawapa.

Passage of Manitoba's new Environment Act has resulted in the environmental impact screening of virtually every development project undertaken in the Province. During 1990-91, staff in the Habitat Management Section reviewed 86 projects submitted for licensing under the Environment Act. These projects varied from relatively minor developments such as small sewage lagoons and road repairs to major projects such as operations by Repap and Manitoba Hydro. Of the 86 projects reviewed, fish or fish habitat concerns were identified in 14. In addition to these reviews, staff were also involved in a number of other environmentally related issues. These included; the review of several environmental impact statements on

the fish resource aspects of the Rafferty-Alameda project, the 1991-1998 Abitibi-Price Forest Management Plan and the Pembina Triangle Water Supply project, input to the Biology Task Force of Garrison Joint Technical Committee, the review of a number of requests for water withdrawals by Trans-Canada Pipelines Ltd., the review of a number of referrals from Transport Canada through the Canada Department of Fisheries and Oceans regarding works in or near surface waters, and a review of the impacts of ammonia on fish in the Red and Assiniboine Rivers in the Winnipeg area.

Information on over 500 waterbodies in all six regions of Manitoba has been compiled and incorporated into Manitoba's Fish Inventory and Habitat Classification System. The system will be installed on regional computer hardware early in 1991, allowing managers easy access to information and data necessary for management, rehabilitation and enhancement of Manitoba's fish resources and habitat. Utilization of the system has been extensive and increasing, with users including Manitoba Hydro, environmental an engineering consultants, university researchers, an other government agencies.

Cooperative enhancement projects were undertake with several fisherman's associations including Arbor Fish and Game, Lake Manitoba Commercial Fisherman' Association, Swan Valley Sport Fishing Enhancemer Inc., Fish Futures Inc., and Manitoba Fly Fisher Projects entailed constructing rock riffles on th Icelandic River to improve fish passage at the Arbor dam, enhancing walleye spawning habitat in Baske Creek, creating trout habitat in the Pine River b excavating meanders, pools and rapids, and enhancin trout habitat in the Whiteshell River.

Other projects included preparation of riparian zon management guidelines, construction of artificial shoal to enhance walleye spawning on Crawford and Stua lakes, and evaluation of rehabilitation works o Edwards Creek, Mink Creek, and Wilson River. Nearin completion is a field methods and design procedure manual on stream habitat exploration and rehabilitatior

Table FI.4
Expenditure by Sub-appropriation 12-8(d) (Fisheries Habitat Management)

8(d) Fisheries Habitat Management	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	387,100	12.00	453,800	(66,700)	
Total Other Expenditures	98,800		165,400	(66,600)	1

Sport and Commercial Fishing Management

This section is responsible for the development, administration and evaluation of management programs and policies relating to the sport, commercial and domestic use of the fishery resource, as well as the related areas of commercial bait fishing and trout farming.

During the open-water fishery of 1990, and the winter fishery of 1990-1991, commercial fish production in Manitoba was 11.2 million kg, down 17% from the previous year. Manitoba's final payments of $965,000 made by the Freshwater Fish Marketing Corporation for the fiscal year of 1989-1990 was down considerably from the previous year. Reasons why Manitoba's commercial fishermen have earned so much less for their catches include a drop in the amount of fish produced and the general state of the economy. Th increased value of the Canadian dollar has also had negative impact since most of the fish is sold in th U.S. for American dollars.

An audit review of the licensing process bein maintained by the Sport and Commercial Managemer Section within Fisheries Branch was undertaken. Th audit review ensures that the systems and procedure for the distribution and subsequent sale of revenu bearing fisheries licenses have been established and a being maintained in a manner which ensures reasonab control and accountability over licenses and revenue received from sales. The audit review also ensures tha license fees are being charged in accordance with th schedule of fees established and documented in th Manitoba Fishery Regulations. The audit observation and recommendations have being initiated.

Planning and development continued on a Memorandum of Understanding to better manage fisheries on lakes and rivers straddling the border between Manitoba and Saskatchewan. The Memorandum of Understanding will address current fisheries management problems such as over harvesting, licence enforcement and inequities in use and economic return.

Continued development of a Ministerial regulation under the Provincial Fisheries Act (Chapter F90) incorporating consumer sales receipts into regulations making it mandatory province-wide and legalizing what has been done in the past as a condition of the commercial fishing license. A commercial fishermen's sales receipt will provide a record of commercial fish production which is marketed directly to the consumer. This is necessary for the enforcement of lake quota and in order to complete the lake production reports which are an important body of management information used in fisheries. The sales receipt will also provide protection for the consumer. Some of the fish marketed by commercial fishermen are subject to possession limits under the sport fishing part of the Manitoba Fishery Regulations. If a consumer is stopped by a Natural Resource Officer, the receipt provides the consumer with lawful excuse for having more than the regulated sport limit of fish in his/her possession.

In 1990-1991 there were 33 licensed trout-farming operations in Manitoba, and 300-400 hobby trout-farming operations in private waters. Four organizations and/or companies distributed fish to fish farmers in the spring.

Fifty-eight fishermen were licensed for commercial bait fishing in 1990-1991. Production of frozen bait was estimated at 67,000 kg. The 18 live-bait fishermen produced about 723,600 dozen bait fish. Thirty-seven dealers were licensed to sell live bait. Gross sales in the bait industry approximates $400,000.

Two new aquaculture publications were prepared by Fisheries Branch in 1990-1991. A "Guide to Intensive Aquaculture in Manitoba" is now available for those wishing to start up a major aquaculture business. The guide is intended to make prospective fish farmers aware of the potential legal requirements, environmental concerns, relevant agency contacts, and general good business practices that will contribute towards increasing the potential for success of an aquaculture operation. The second publication, "Manitoba Fish Farming Operations" lists licensed fish farmers in the province, the species and sizes of fish they raise, and some of the services they offer. These publications were prepared for the first time this year as a result of numerous inquiries from the public for this type of information.

Anglers need information on Fisheries Branch policies, activities and events in order to participate effectively in fisheries management. In the past year, informational articles have been provided to newspapers, outdoor magazines and club newsletters. Topics have included the rational behind prohibiting barbless hooks, the use of various fish-size regulations, stocking as one management tool, understanding commercial fishing, etc. Fisheries staff have attended numerous industry shows (e.g. International Sportsman's Show), mall events, festivals, derbies and club meetings providing visual displays, written materials and seminars on Manitoba's fisheries.

Particular emphasis was placed on informing anglers about the danger of introducing zebra mussels to Manitoba. An article and photograph were included in the 1991 angling guide; a short video on how to detect and deal with zebra mussels on boats and equipment was produced and used at informational meetings; and, staff provided radio and television interviews as well as seminars at public meetings.

Since many recent angling regulations specify fish length, an adhesive measuring tape was produced in cooperation with Travel Manitoba in 1990. The tape is a promotional item provided free to anglers for their boats. The use of length rather than weight as a measure of fish size is also being encouraged to decrease handling of fish during catch and release derbies.

The 1991 Sport Fishing Guide was again published by Fish Futures Inc. in conjunction with Manitoba Natural Resources. The contract continues to serve as a means of fund raising for Fish Futures, a non-profit organization dedicated to fisheries preservation and enhancement and public education, while allowing production of the guide at a saving to the branch. Fish Futures will use all profits to enhance freshwater fisheries in Manitoba.

The largest single sport fishery in Manitoba, the Red River, is used by many new Canadians. Often, English is a second language to these people and many are unable to read the Sport Fishing Guide. Special efforts have been made to provide information on angling regulations to them. An article was published in The Welcome News, a paper for new Canadians who have limited understanding of English. Fisheries staff conducted seminars in English language classes. Basic regulations were translated to Laotian, Vietnamese and Tagalog (Filipino) and distributed to ethnic newspapers

and cultural centres in Winnipeg.

In the summer of 1990 the branch received numerous requests from sport and commercial fishermen for control of double-crested cormorants, a fish-eating bird. The cormorant population has grown dramatically in recent years; not only in traditional areas such as Lake Winnipegosis but on stocked waterbodies as well. Their effect on fish populations varies but they can be devastating, especially in stocked ponds. To assist managers in assessing impacts and determining appropriate action, the branch along with Wildlife has been developing draft departmental policy and procedures. This issue is still evolving and may take some time to resolve.

The Sparrow decision of the Supreme Court of Canada provided guidelines pursuant to which Indian food fishing controls could be administered within a framework which recognizes their constitutional righs to fish for food while also recognizing the need for valid conservation legislation. Interim guidelines for the administration of Treaty Indians fishing for food have been developed. These guidelines have been circulated to management staff of Fisheries Branch with instructions that they be transmitted to each band in the province for their information and comment. This action is an initial step in developing a common understanding between Manitoba Indians and the Department of Natural Resources regarding the implications of this Sparrow decision, specifically domestic fishing by Treaty Indians.

A national survey of recreational anglers of Manitoba was conducted in conjunction with the Federal Department of Fisheries and Oceans. Each Province is responsible for collecting the required data from those anglers who purchased licences and fished within its jurisdiction during the 1990 angling sesason. The results of the questionnaire are used by the Province when considering changes to recreational angling regulations or to assist in future fisheries management. Manitoba Fisheries Branch selected a random sample of 2340 Manitoba residents, 500 Canadian residents and 1200 American residents and mailed each a questionnaire. Forty-three percent of Manitobans, 53% of other Canadians and 59% of American anglers had completed and returned their questionnaires. Data analysis and summaries are been compiled by the Federal Department of Fisheries and Oceans.

A controversy involving sport fishing groups (mainly the Red River Advisory Group) who fish the Red River and commercial fishermen on the south basin of Lake Winnipeg continued. Sport fishing groups have blamed a decline of walleye fish stocks on the Red River on commercial netting activities on Lake Winnipeg near the mouth of the Red. Sport fishermen have been lobbying for increased restrictions on commercial fishermen such as increasing the area closed to commercial gill netting around the Red River mouth. The commercial fishermen are aware of these developments and are concerned. The Lake Winnipeg Fisheries Management Advisory Board, composed of commercial fishermen on Lake Winnipeg, hav- requested legislative changes to protect their fishing rights. They would like to ensure that the current management regime would not be changed without first consulting with them, and to place the quota entitlement system in legislation to provide them with long term security. Management information outlining long term trends on the south basin of Lake Winnipeg and the catch breakdown by gill nets around the existing one mile boundary near the Red River mouth has been presented to sport fishing interest groups. A proposed action plan has been discussed and adopted by representatives of the south end commercial fishery and the Red River Advisory Group to enter into a process aimed at determining if there is a requirement for a gill netting boundary change around the mouth of the Red River.

The branch continues to encourage resource users to participate in management of sport fisheries. Lake-specific management plans developed in consultation with local users have been instrumental in introducing new and innovative changes to regulations pertaining to sport fishing on various lakes. Private organizations and groups including Swan Valley Sport Fishing Enhancement Inc., Intermountain Sport Fishing Enhancement, Fish Futures Inc., Greenstone Development Corp., Manitoba Wildlife Federation and associated clubs, Clearwater Lake Advisory Committee, Dauphin Lake Advisory Board, and the Manitoba Lodge Owners Association have worked with the branch during the past year to co-operatively manage fishery resources in various regions. Swan Valley Sport Fishing Enhancement Inc., Intermountain Sport Fishing Enhancement and Fish Futures Inc. held their annual banquets to raise funds for habitat improvement, fish stocking, children's seminars and fisheries research and management programs.

Table FI.5

Expenditures by Sub-appropriation 12-8(c) (Sport and Commercial Fishing Management)

8(c) Sport and Commercial Fishing	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	293,500	7.00	294,800	(1,300)	
Total Other Expenditures	99,100		80,000	19,100	

Table FI.6

Angling Licence Sales and Revenue, 1981/82 To 1990/91

	Resident - Regular			Resident - Conservation			Total Resident	
Year	Number	Fee $	Revenue $	Number	Fee $	Revenue $	Number	Revenue
1981/82	159,233	3.30	486,394.90				159,233	486,394
1982/83	164,384	5.00	741,087.50				164,384	741,087
1983/84	157,724	5.00	710,986.50				157,724	710,986
1984/85	154,489	5.00	696,541.50				154,489	696,541
1985/86	154,602	6.00	851,476.00				154,602	851,476
1986/87	158,412	6.00	872,568.00				158,412	872,568
1987/88	158,118	6.00	870,850.00				158,118	870,850
1988/89	91,485	10.00	869,832.50	61,671	5.00	277,849.50	153,156	1,147,682
1989/90	79,972	10.00	760,346.50	68,076	5.00	306,653.00	148,048	1,066,999
1990/91	74,321	10.00	706,757.00	72,030	5.00	324,521.50	146,351	1,031,278

	Non-Resident Regular			Non-Resident Conservation			Total Non-Resident	
Year	Number	Fee $	Revenue $	Number	Fee $	Revenue $	Number	Revenue
1981/82	32,037	11.00	344,723.50	8,439	5.50	44,369.50	40,476	389,093
1982/83	28,561	20.00	557,353.50	3,777	12.00	43,502.50	32,338	600,856
1983/84	29,852	20.00	582,435.00	3,592	12.00	41,346.50	33,444	623,781
1984/85	30,268	20.00	590,545.50	3,443	12.00	39,645.00	33,711	630,190
1985/86	22,239	30.00	656,289.00	10,325	15.00	149,824.00	32,564	806,113
1986/87	21,809	30.00	643,571.00	12,536	15.00	181,906.50	34,345	825,477
1987/88	21,861	30.00	645,063.00	13,834	15.00	200,748.50	35,695	845,811
1988/89	18,013	30.00	531,515.00	14,428	15.00	209,355.50	32,441	740,870
1989/90	16,647	30.00	491,187.00	16,175	15.00	234,652.00	32,822	725,839
1990/91	11,483	30.00	338,827.50	18,170	15.00	263,626.50	29,653	602,454

	Total Regular Licences			Total Conservation Licences			Total Licences	
Year	Number		Revenue $	Number		Revenue $	Number	Revenue
1981/82	191,270		831,118.40	8,439		44,369.50	199,709	875,488
1982/83	192,945		1,298,441.00	3,777		43,502.50	196,722	1,341,944
1983/84	187,576		1,293,421.50	3,592		41,346.50	191,168	1,334,768
1984/85	184,757		1,287,087.00	3,443		39,645.00	188,200	1,326,732
1985/86	176,841		1,507,765.00	10,325		149,824.00	187,166	1,657,589
1986/87	180,221		1,516,139.00	12,536		181,906.50	192,757	1,698,045
1987/88	179,979		1,515,913.00	13,834		200,748.50	193,813	1,716,661
1988/89	109,498		1,401,347.50	76,099		487,205.00	185,597	1,888,552
1989/90	96,619		1,251,533.50	84,251		541,305.00	180,870	1,792,838
1990/91	85,804		1,045,584.50	90,200		588,148.00	176,004	1,633,732

Note: *Revenue figures are net (less vendor's commission).*
Non-resident 3-day licences were discontinued in 1985-86.
Non-resident conservation licences were introduced in 1985-86.
Resident conservation licences were introduced in 1988-89.

Table FI.7

Fishermen Employed in Manitoba's Commercial Fishery, 1989-1990

	Northern Lakes	Lake Winnipeg	Lake Manitoba	Lake Winnipegosis	Other Lakes	Overall
Summer						
Licence Holder	567	841	33	41	159	1580
Hired Men or Helpers	179	167	0	82	13	428
TOTAL	746	1008	33	123	172	2008
Winter						
Licence Holders	188	343	590	163	316	1560
Hired Men or Helpers	139	66	427	180	125	912
TOTAL	327	409	1017	343	441	2472
Annual						
Licence Holders	620	896	598	176	325	2508
Hired Men or Helpers	249	180	427	225	138	1181
TOTAL	869	1076	1025	401	463	3689

Note:

Those who fish in more than one area or season or who fish both as hired men and licence holders, are counted only once in the appropriate "TOTAL" column. Where hired man and licence holder duplication occurs, the individual is counted as a licence holder. Therefore, the table does not total horizontally.

Commercial fishing statistics for the 1990-1991 fiscal year were not available in time to be included in this report. They will appear in the annual report for the next fiscal year.

Table FI.8

Commercial Fishing Production (Round kg), Total Value and Employment (Licenced Fishermen Plus Hired Men) 1980-81 To 1989-90.

	Northern Lakes		Lake Winnipeg		Lake Manitoba		
Year	Weight (kg)	$ Value	Weight (kg)	$ Value	Weight (kg)	$ Value	
1980-81	3,474,300	3,576,200	5,652,800	9,066,800	2,330,400	2,270,950	
1981-82	2,888,150	3,344,350	5,929,100	9,935,800	2,637,850	2,462,900	
1982-83	2,732,850	2,252,500	5,446,900	6,963,800	3,290,800	1,825,900	
1983-84	2,167,250	2,431,650	5,502,100	8,871,650	2,457,500	2,224,700	
1984-85	2,563,850	3,350,000	5,950,100	9,870,550	1,751,050	2,260,900	
1985-86	2,543,250	2,961,900	5,521,500	10,304,350	1,601,000	1,817,200	
1986-87	2,345,150	3,545,500	5,559,000	14,191,950	1,789,000	3,250,550	
1987-88	2,180,950	4,085,950	5,879,800	15,545,700	1,756,950	4,329,200	
1988-89	2,748,750	4,034,750	6,099,750	11,936,700	2,002,700	3,876,200	
1989-90	2,652,650	3,003,300	5,917,250	9,636,500	1,776,350	2,623,700	

	Lake Winnipegosis		Other Lakes		Manitoba Total		
Year	Weight (kg)	$ Value	Weight (kg)	$ Value	Weight (kg)	$ Value	Total Employment
1980-81	3,172,650	1,375,200	1,816,100	2,346,750	16,446,250	18,635,900	3,659
1981-82	1,873,250	972,450	1,320,150	1,802,650	14,648,500	18,518,150	3,767
1982-83	2,550,350	1,096,900	1,446,900	1,235,750	15,467,800	13,374,850	3,826
1983-84	1,859,550	1,266,900	1,218,950	1,582,650	13,205,350	16,377,550	3,737
1984-85	1,939,700	1,513,650	1,545,600	1,989,050	13,750,300	18,984,150	3,811
1985-86	1,875,150	1,077,900	1,288,900	1,707,750	12,829,800	17,869,100	3,660
1986-87	1,448,200	1,235,750	1,483,750	2,672,500	12,625,100	24,896,250	3,609
1987-88	1,627,500	1,342,750	1,613,950	2,952,000	13,059,150	28,255,600	3,594
1988-89	1,141,550	916,900	1,791,050	2,794,750	13,783,800	23,559,300	3,638
1989-90	1,727,450	1,031,900	1,438,050	1,839,450	13,511,750	18,134,850	3,689

NOTE: *Total value includes both Initial Value and Final Payment.*

Table FI.9

Commercial Fishing Production (Round Weights kg) by Area and Total Value By Species, 1989-1990

Species	Northern Lakes		Lake Winnipeg		Lake Manitoba		Lake Winnipegosis	
	Summer	Winter	Summer	Winter	Summer	Winter	Summer	Winter
Bass				19,450				
Carp				1,450	12,550	75,350	19,550	125,800
Goldeye	5,700	400	2,450	6,250		Trace[2]	3,250	2,550
Maria			100	300				
Mullet		6,150	1,350	250	61,750	306,100	475,300	502,300
Perch	450	800	101,200	33,150		271,900	200	91,650
Pickerel	677,250	130,700	2,124,200	201,850		344,000	80,100	14,300
Pike	740,650	257,600	127,850	17,650	150	119,000	29,750	275,700
Sauger	3,650	600	1,321,700	742,450		571,200	1,300	1,650
Sturgeon	7,150							
Trout	26,600	150					Trace[2]	Trace[2]
Tullibee	32,400	10,450	Trace[2]				47,200	56,850
Whites.	629,050	122,900	818,200	397,400		14,350		
Total	2,122,900	529,750	4,497,050	1,420,200	74,450	1,701,900	656,650	1,070,800

Species	Other Lakes[1]		Total Production			Total Value $[3]		
	Summer	Winter	Summer	Winter	Total	Summer	Winter	Total
Bass				19,450	19,450		30,650	30,650
Carp	450	5,5050	32,550	207,650	240,200	9,700	49,300	59,000
Goldeye	4,450	14,900	15,850	24,100	39,950	36,300	72,750	109,050
Maria			100	300	400	Trace[2]	100	100
Mullet	18,600	49,050	557,000	863,850	1,420,850	140,150	248,450	388,600
Perch	850	8,350	102,700	405,850	508,550	208,300	923,150	1,131,450
Pickerel	315,550	145,800	3,197,100	836,650	4,033,750	6,059,050	1,910,750	7,969,800
Pike	198,200	362,000	1,096,600	1,031,950	2,128,550	696,900	665,800	1,362,700
Sauger	8,950	5,650	1,335,600	1,321,550	2,657,150	2,025,900	2,398,450	4,424,350
Sturgeon			7,150		7,150	70,000		70,000
Trout			26,600	150	26,750	22,350	150	22,500
Tullibee	31,200	5,900	63,600	16,350	79,950	27,800	8,100	35,900
Whites.	87,400	175,700	1,581,850	767,200	2,349,050	1,439,300	1,091,450	2,530,750
Total	665,650	772,400	8,016,700	5,495,050	13,511,750	10,735,750	7,399,100	18,134,850

1. Includes Beaver Dam Lake, Cedar Lake, Chitek Lake, Dauphin Lake, Dog Lake, Goose Lake (52°24' 98°45'), Inland Lake, Mire Lake, Pelican Lake, Proulx Lake, Red Deer Lake, St. David Lake, St. Martin Lake, St. Michael Lake, St. Patrick Lake, Swan Lake, Waterhen Lake, William Lake.
2. Small Amount.
3. Total $ value includes both initial value and final payment.

NOTE: Commercial fishing statistics for 1990-1991 fiscal year were not available in time to be included in this report. They will appear in the annual report for the next fiscal year.

Northern Fishermen's Freight Assistance

The Department was directed to reduce expenditures on the Northern Fishermen's Freight Assistance Program (NFFA). Starting with the 1991 open water season, program expenditures will be limited to $250,000 annually. The Department has determined that the most effective way to remain within the spending cap while ensuring that fishermen have access to all funds budgeted for the program is as follows: fishermen will pay the first 20¢/kg, the province will pay the next 35¢/kg, and fishermen will then pay any freight costs in excess of 55¢/kg. With this method, lakes with high freight costs will still qualify for the full subsidy of 35¢/kg.

To ensure the $250,000 limit is not exceeded, Freshwater Fish Marketing Corporation (FFMC) will administer the subsidy using an initial-final payment system. Fishermen will receive 70% of the subsidy they are eligible for in their initial payment. The remainder of the subsidy will be distributed early in the following fishing year.

Because of the downward trend in fish prices, the Northern Fishermen's Freight Assistance Program was particulary important to northern commercial fishermen in 1990-1991. A total of $268,000 was paid to 619 commercial fishermen for the 1990 summer season. Payments to 210 fishermen for the 1990-1991 winter season amounted to $73,000.

Table FI.10
Expenditure by Sub-appropriation 12-8(f) (Northern Fishermen's Freight Assistance)

8(f) Northern Fishermen's Freight Assistance	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Other Expenditures	346,800		342,600	4,200	

Fishermen's Loan Program

Fisheries Branch reviewed and initiated proposals to the Fishermen's Loan Regulation that would increase the maximum loan amount available to part-year commercial fishermen and remove the authority for the funding for the loan program from the Legislated Authority under the Fisheries Act and include the funding in the annual loan authority (Loans Act) passed by the legislature.

In the past, only full-year fishermen were permitted to have loans up to $30,000. Part-year fishermen were restricted to $18,000. Some part-year fishermen hold several quotas under the quota entitlement system that is used to manage the Lake Winnipeg commercial fishery, with the result that their overall operation, in terms of catch or sales, is the same as or greater than full-year fishermen. Consequently, the differential in maximum permitted loans was no longer appropriate.

The change in funding approach would provide a stab cost of borrowing and enable the Manitoba Agricultu Credit Corporation to properly manage the lo program. The current method of borrowing based the Legislated Authority under the Fisheries Act resu in the program paying the department of finance t current prime rate on all outstanding loans. With t volatility of the prime rate and the substantially high portfolio carried under the loan program, this method borrowing is very poor money management.

Table FI.11

Expenditure by Sub-appropriation 12-8(g) (Fishermen's Loan Program - Administration)

8(g) Fishermen's Loan Program - Administration	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Other Expenditures	701,800		716,900	(15,100)	

Section 7

Forestry Branch

The Forestry Branch manages provincial Crown forest land as an economic resource for present and future use. To ensure sustainable development of the province's forests and other land resources, the Branch manages and allocates forest resources for the best long-term social and economic benefits to Manitobans. It ensures that all forest harvesting operations are performed in a manner that minimizes losses and environmental damage. It provides opportunities for other resource uses in designated forestry lands where the opportunities complement existing or future forest-harvesting operations. The branch ensures that silvicultural and regenerative activities are developed and implemented to maintain or improve the standing supply of timber. To prevent widespread tree mortality and timber losses it provides a level of forest protection commensurate with the values at risk. The branch ensures that the Crown obtains a fair return for the use of its forestry resource. It manages the elm tree population in the province's urban centres to mitigate the impact of Dutch elm disease.

Administration

The objectives of the Administration Section are to establish, develop and maintain a management system which ensures that the forests of Manitoba are used in the most efficient and effective manner; to ensure this valuable resource is renewed and maintained for the future; and to provide grant assistance to Forintek Canada Corporation and the Manitoba Forestry Association.

Direction to the branch is provided by establishing priorities and guidelines, and by ensuring conformity with forestry and governmental policies and departmental missions.

The Administration Section assesses the effectiveness of branch activities, products and programs to meet the goals of the branch, the department and the government.

All forestry activities will conform to *The Forest Act* and *Regulations* and government policies.

Table FO.1
Expenditure by Sub-appropriation 12-7(a) (Administration)

7(a) Administration	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	228,200	2.00	220,400	7,800	
Other Expenditures	4,300		5,000		
- Grants/Transfer Payments	34,400		34,400		
Total Other Expenditures	38,700		39,400	(700)	

Forest Management

The objectives of this section are to assure that the forest resource is managed for long-term sustainable development; to promote increased use of the commercial forest zone; and to promote rational use of forest resource in Manitoba.

The section locates and defines the province's forest resources to calculate the amount available for sustained yield annual harvests. It co-operates with Manitoba Industry, Trade and Tourism to increase the use of Manitoba's available forest resources by fores industries.
It determines ownership/resources to provid opportunities for rural woodlot management. Th section identifies and assists in the development o sustainable commercial opportunities.

The Forestry Geographic Information System (FORIST completed an inventory which included portions of th Lake Winnipeg East, Interlake, Highrock and Nelso River forest sections of the province.

Table FO.2
Forest Inventory Projects, 1989-1990

	Planned (km^2)	Actual (km^2)
Aerial Photography	12,600	10,130
Phototyping	15,950	12,040
Forest Cover Mapping	15,950	13,180
Air Photo Interpretation	15,950	13,750
Area Compilation	35,400	33,250
(FORIST Library)	35,400	0
Forest Inventory Reports		

Geographic information for the Forest Management Licence Agreement (FML) number 2 was provided for Repap Manitoba, as a requirement for their Environmental Impact Assessment (EIA).

Forest Management Section and the Branch's Northern Region have been co-operating with Boreal Ecosystems - Atmosphere Study (BOREAS) committee, providing information on aerial photography and forest cover mapping. The information will be used for the BOREAS research project of the interactions between the boreal forest biome and the atmosphere in order to clarify their roles in global change.

Planned aerial photography of 10,130 km^2 in the Nelson River forest section was only 80% completed, due to adverse weather (Table FO.3).

Forest Cover Mapping was 83% completed in portions of the Nelson River forest section in Northern Manitoba. Mapping and photointerpretation activities were limited by the aerial photography contract, which was not completed. Photointerpretors were re-assigned to assist with mapping of the 1989 and 1990 wildfires. Approximately 86% of the planned photointerpretation in Forest Management Units 66 and 82 and 89 was completed.

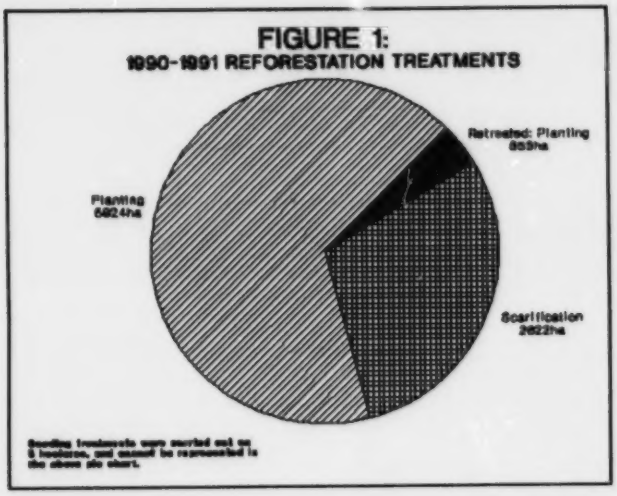
Table FO.3
Wildfire Damage and Loss

	Fire Year	
	1989-1990	1990-1991
Man Caused Fires	513	288
Lightning Caused Fires	713	282
Total number of Fires	1,266	570
Area Burned - Forest Zone	2,636,140 ha	15,100 ha
Total Province	3,567,900 ha	16,400 ha
Merchantable Volume Lost		
Forest Zone	68,117,000 m^3	224,500 m^3
Total Province	75,081,500 m^3	233,300 m^3

Communication was maintained with Manitoba's forest industry, and the opportunities for new or expanded for operations which arise through proposals for timber use were evaluated.

Assistance was continued to private woodlot owners to develop woodlots.

Figure FO.1
Reforestation Treatments, 1990-1991



In Forest Management Unit 61, 192 temporary sample plots were established to examine growth and yield. Growth and Yield activity continued in fourteen (14) Forest Management Units throughout the Province, and sixty-nine (69) permanent sample plots were established.

Forest cover information "library" storage continued, using the Geographic Information System (GIS). As well, computer program development for forestry regional offices continued to enable these offices to monitor timber sales, resource depletion and associated changes to the resource base.

The wildfire damage and loss reports for both 1989-1990 and 1990-1991 fiscal year were completed during the year and are summarized in table 2.

Table FO.4
Expenditure by Sub-appropriation 12-7(b)(Forest Management)

7(b) Forest Management	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	790,000	22.0	805,200	(15,200)	
Total Other Expenditures	155,300		155,600	(300)	

Silviculture

The objectives of the Silviculture Section are to supervise and manage the forest renewal program and the provincial forest nurseries to ensure provincial standards are maintained; and to ensure that the tree improvement and forest genetics program is coordinated to meet the needs and guidelines of the forest renewal program.

The section operates the provincial forest nurseries at Hadashville and Clearwater Lake, and implements the tree improvement program.

Resources were supplied (direction, technica information and seedling stock) to enable the branch and the forest industry to implement a forest-renewa and stand-improvement program on approximatel 8,904 ha of cut-over and burned-over forested lands.

In 1990-1991 the branch carried out regenerativ treatments on 8,551 ha of forest land. The major pa of the area was planted; the remainder was seeded o scarified to promote natural regeneration (Figure FO.1 As well 503.2 ha were tended by thinning o herbiciding (Table FO.4).

Table FO.5
Forest Renewal Activities, 1990-1991

1990-1991 Forest Renewal Activites	Manitoba Forestry Branch	Abitibi-Price Inc.	Repap Manitoba Inc.	Total
Site Preparation				
Mechanical (ha)	3,216	1,153	3,654	8,733
Chemical (ha)	30	25		55
Renewal				
Trees Planted (1000s)				
Container stock	2,622	1,081	5,318	9,021
Bareroot stock	3,239	692		3,931
Total number of Trees (1000s)	5,861	1,773	5,318	12,952
Hectares planted	2,459	915	2,550	5,925
Hectares seeded	5			5
Hectares Scarified for Natural Regen	1,351	—	1,271	2,622
Total Hectare Treated	3,815	915	3,821	8,551
Re-Treatments		67		631
Trees Planted (1000s)	564	35		353
Hectares replanted	318			256
Stand Tending				11
Hectares Herbicided	256	11		
Hectares Thinned				
Cone Collections (hectolitres)				
Jack Pine	171			171
Red Pine	5			5
Black Spruce	119	7		126
White Spruce	2	—		2
Total Collected (hl)	297	7		304

Table FO.6
Expenditure by Sub-appropriation 12-7(c) (Silviculture)

7(c) Silviculture	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	238,200	6.00	251,900	(13,700)	
Total Other Expenditures	452,100		452,500	(400)	

Forest Protection

The objectives of forest protection are to prevent widespread tree mortality and significant timber losses in forest stands and to prevent loss or damage to forest nursery seedlings due to insects or diseases; to maintain forest cover in good condition in high-use recreational areas; to provide information and technical assistance to the public; to ensure applications of pesticides in forests are in an effective, safe, efficient

and economical manner; to develop and implement technologies through field research to improve forest protection; and to maintain elm tree losses in communities and urban centres at acceptable levels.

The section monitors the extent and impact of major pest problems in provincial forest nurseries and in commercial forests, and recommends controlling procedures as and when required.

The section evaluates the efficiency and effectiveness of existing and new chemical pesticides and natural biological controls used for both urban and commercial forest protection.

The section monitors and implements forest pest control programs in both commercial and urban (Dutch elm disease) situations, applies new technologies and actively researches methods of reducing the impact of forest pests. It also provides program direction and public information for Dutch elm disease control and the management of forest insects and disease.

Appropriate responses are made to deal with problem insects and diseases, including sanitation activities, silvicultural management techniques and/or application of pesticides (biological, wherever possible) in high priority areas.

A forest pest control program based on the value at risk, the potential gains, the cost-effectiveness of the treatment, and environmental acceptability, was implemented.

Aerial spraying of the bacterial insecticide *Bacillus thuringiensis* (Bt) for spruce budworm was undertaken over an area of approximately 5,000 ha of high-use recreational land and high-value timber. Pest surveys, efficacy tests and sample plots were continued for a number of insects and diseases, including jack pine budworm, elm bark beetles, western gall rust, armillaria root rot and pine root collar weevil.

Consistent with its goals and objectives to prevent timber loss, Forest Protection is assisting Regional Services Branch to develop new fire management techniques and methodologies. This includes installation of the Intelligent Fire Management System (IFMIS), a computer program developed by Forestry Canada. IFMIS is used to predict fire activity, thereby assisting with decisions regarding deployment of equipment and manpower, weather prediction, fire behaviour, and value at risk.

Dutch elm disease is controlled by reducing tree mortality to 2% or less in communities and urban centres and by reducing hazardous and diseased elms by implementing cost-sharing agreements with cities and municipalities as appropriate.

Approximately 14,800 trees were marked for removal in and around urban and rural municipalities, and 11,088 trees in the City of Winnipeg. In spite of an increase in tree mortality due to Dutch elm disease, which likely intensified from drought stress, the loss of urban elms remained below 2% in most communities.

Through support from the Environmental Innovations Fund, the Forestry Branch undertook an elm tree replacement program in the City of Winnipeg. Approximately 4,000 green ash and basswood trees were planted, mostly on private lands.

Table FO.7
Expenditure by Sub-appropriation 12-7(d) (Forest Protection)

7(d) Forest Protection	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	747,600	24.29	786,500	(38,900)	
Total Other Expenditures	1,832,900		1,719,700	113,200	

Forest Operations

The objective of the Forest Operations Section is to ensure that forest resources in all forest management units in an administrative region are managed and allocated in a manner which provides the best long-term social and economic benefits to Manitobans.

The section prepares the branch's current and capital spending estimates, monitors and controls the branch's finances, acquires appropriate staff and ensures training and development are provided as required.

The section acquires appropriate staff and ensures training and development are provided as required.

The section provides direction and guidelines, and maintains records of timber allocation, timber use and harvesting activities involving some 12,000 - 15,000 permits, sales and licences each year.

The section develops and implements forest management plans for each forest management unit in the region. It implements and evaluates program functions and projects for timber-sale supervision and management, forest renewal and reforestation and stand improvement within the region. The section provides guidance and information on forest policies and procedures to regional resource managers and enforcement personnel.

The section continues to ensure the existence of a strong regional forest industry which employs a component of the 12,000 employees of 237 industries and 5,500 small permittees in Manitoba through the production of over 1.55 million m^3 of timber in the form of lumber, pulpwood, hydro poles, round timber, fuelwood and Christmas trees which brings in approximately $500 million in direct and indirect benefits to the province.

The timber harvest from provincial Crown lands totalled 1,552,354 m^3 for the 1990-1991 fiscal year. Timber revenue decreased to $2,079,276.43, which represents a 1.1% decline from the previous year. New five-year sale areas were established for quota holders and those with special allocations.

Forest Operations and regional staff, through the regional planning committees, were involved in the the review and evaluation of the five-year operating plans for Abitibi-Price Inc. and Repap Manitoba. Five-year forest operating plans were continued on Forest Management Units 20, 23, 30, 40, 42 and 57. For areas falling within Repap Manitoba's Forest Management Licence Agreement, preparations are being made for the transfer of forest management responsibilities.

Regional staff were involved in an integrated forestry and wildlife management study of moose and caribou habitat in Abitibi-Price Inc.'s forest management licence area.

Forest Operations staff were involved in finalizing policies for sustainable development of Manitoba's forests.

Forest renewal activities remained at approximately the same level as previous years with the use of tendered contracts to deliver the programs.

The section ensures that all forestry programs are delivered within approved spending estimates. Using the Forestry Branch's existing financial project management system the 1990-1991 expenditures were within 0.8% of budget estimates.

The section prepares the branch's current and capital spending estimates within appropriate deadlines. The administration component of the Forest Operations Section provided the required capital expenditures, ongoing monitoring and supporting documentation to ensure the branch expenditures were within the target levels identified.

The section deals with all staffing activities in a manner consistent with departmental and government policies and procedures. This includes administrative support on all personnel matters for the 78 permanent, 15 term and approximately 17 permanent departmental employees within the branch.

Under the direction of this section the branch maintained its support for National Forest Week and the Manitoba Forestry Association, printed and distributed educational materials, represented the branch at mall exhibits and major events, and developed a video about managing Dutch elm disease.

During the 1990-1991 fiscal year staff from the section were involved in the preparation of a five-year computer task report for the branch.

Table FO.8
Expenditure by Sub-appropriation 12-7(e) (Forest Operations)

7(e) Forest Operations	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	1,062,700	30.00	1,076,400	(13,700)	
Total Other Expenditures	260,300		265,600	(5,300)	

Forest Renewal Program

The objectives of this program are to provide bareroot and containerized seedlings for the provincial reforestation program; to improve the quality of natural stands and plantations for future production; to develop genetically superior seed and vegetative material for the provincial nursery program; and to coordinate and ensure the effectiveness of the provincial silvicultural program.

Activities of this program are the provincial supervision of the forest renewal program; the operation of the Pineland Forest Nursery at Hadashville and the Clearwater Forest Nursery at The Pas, which annually produces 13 million seedlings: continuing work on a dynamic tree improvement and forest genetics program; and the reforestation and forest renewal of approximately 3,800 ha of cut-over and burned forest land.

Under this program, approximately 7,300 ha of planted and naturally regenerated areas will be surveyed, a portion of the 13 million seedlings produced at the provincial nurseries will be planted, along with additional site preparation work. Improved softwood species are being developed under the tree improvement program from breeding and seed orchard development. Also stand improvement on approximately 280 ha will be carried out.

At the Clearwater Forest Nursery 5.4 million container seedlings were produced for planting, and 1.5 million frozen container seedlings were shipped to the Pineland Forest Nursery for overwintering.

Table FO.9
Expenditure by Sub-appropriation 12-7(f) (Forest Renewal Program)

7(f) Forest Regeneration	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	482,200	13.41	500,700	(18,500)	
Other Expenditures	1,546,000		1,549,000		
- Grants/Transfer Payments	37,200		37,200		
Total Other Expenditures	1,583,200		1,586,200	(3,000)	

Forest Development Program

The objectives of the Forest Development Program are to assist in developing and maintaining sufficient timber supplies to ensure long term viability of Manitoba's forest industry; to increase efficiency of forest resource use; and to contribute to economic development of the Manitoba forestry sector, including improved employment opportunities.

Additional funding for silviculture activities, as identified in sub-appropriations 12-7(c) (Table FO.5) and 12-7(f) (Table FO.8) was provided under the *Forest Renewal Program* and the Forest Development Program. This includes cone collection, seedling production, site preparation, planting and stand tending. Similarly, forest protection programs [sub-appropriation 12-7(d) (Table FO.6)] such as aerial spraying of *Bacillus thuringiensis* and research, and forest management programs [sub-appropriation 12-

7(b) (Table FO.4)] such as forest cover mapping, were further supported by funding under these two programs.

Other programs supported by the *Forest Renewal Program* and Forest Development Program include woodlot management, technology transfer and applied research, administration, and public information.

In anticipation of a new five-year federal-provincial agreement, provincial funding for these programs continued at the same levels. The 1984-1989 agreement expired on March 31st 1989. The Canada-Manitoba Partnership Agreement in Forestry was signed on March 25th, 1991.

Table FO.10
Expenditures by Sub-appropriation 12-7(g) (Forest Development Program)

7(g) Forest Development Program	Actual 1990/91 $	SY	Estiamte 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	252,500	11.00	358,800	(106,300)	1
Total Other Expenditures	1,987,900		1,989,300	(1,400)	

Explanation Number:

1. Variance due to vacant staff positions.

Table FO.11
Expenditure by Sub-appropriation 12-7(h) (Forest Renewal)

7(h) Forest Renewal	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	11,700	1.00	41,300	(29,600)	
Total Other Expenditures	2,905,400		2,906,300	(900)	

Table FO. 12
Expenditures by Sub-appropriation 12-7(j) (Sioux-MacDonald Seedling Agreement)

7(j) Sioux-MacDonald Seedling Agreement	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Other Expenditures	187,400		.....	187,400	1
Recoveries-Environmental Innovations Fund	(187,400)		.....	(187,400)	1

Explanation Number:

1. The Department entered into a contract for seedlings for the 1990 planting year. The costs of the contract were funded from the Environmental Innovations Fund.

Table FO.13
Expenditures by Sub-appropriation 12-7(k) (Tree Replacement - City of Winnipeg)

7(k) Tree Replacement-City of Winnipeg	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	67,100		.....	67,100	1
Total Other Expenditures	103,600		.....	103,600	1
Recoveries - Environmental Innovations Fund	(170,700)		.....	(170,700)	1

Explanation Number:

1. *The Department undertook a tree replacement program in the City of Winnipeg. The costs for the program were funded from the Environmental Innovations Fund.*

Section 8

Lands Branch

The Lands Branch manages and administers Crown lands in accordance with legislation, policies and approved land use plans; co-ordinates clearances of land use on behalf of the Department of Northern Affairs; allocates Crown land in accordance with departmental direction; ensures that operations of crown land lessees and permittees are consistent with conditions of use; resolves competing land claims and uses by co-ordinating work through six regional offices, planning district meetings, major user-groups, Crown land plans, clearance for private subdivisions, gravel removal, and lake studies for recreational and other related working groups; administer the wild rice resource; investigates and negotiates outstanding Indian land claims, implements co-management programs with Treaty Indians; provides a registry system of all dispositions of Crown land; and works co-operatively with other branches, departments, outside agencies and users in planning and managing land-related programs, embodying principles and guidelines of integration and sustainable uses.

Administration

The objectives of the Administration Section are to develop and manage Crown lands effectively for the overall benefit of Manitobans; to facilitate economic activity on Crown land with associated job creation while maintaining the resource base for future generations; and to ensure the necessary budget and support services for program delivery.

The section identifies opportunities for the development of Crown land to optimise the return on private capital in terms of economic return and related job creation; prepares the programs according to priority and compares the final product without overexpenditure; and ensures the employment through careful recruitment and relevant staff training and development.

Crown land is developed and marketed using primarily private capital. The development of the land base provides opportunities for construction which create a significant multiplier effect on job creation and resource-return.

Table LA.1

Expenditure by Sub-appropriation 12-6(a) (Administration)

6(a) Administration	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	127,900	3.00	129,700	(1,800)	
Other Expenditures	19,500		20,200		
- Grants/Transfer Payments	6,000		6,000		
Total Other Expenditures	25,500		26,200	(700)	

Crown Land Administration

The objectives of Crown Land Administration are to administer The Crown Lands Act and to allocate the land resource to fulfill program objectives and to reflect appropriate inter-departmental and inter-branch clearances consistent with legislation, regulations and policies, all within a reasonable time frame.

The section engages in extensive public contact by telephone, personal meetings, correspondence, public meetings and over the counter enquiries.

Indian Land Claims

The objectives of this section are to be responsible for the overall research, planning, administration, negotiation, development and implementation of departmental policies and objectives for Indian land claims related to treaty land entitlement, flooding compensation, re-acquisitions for public purposes and band-initiated exchanges.

The section maintains an effective working relationship with colleagues in the Department of Indian Affairs,

and with Indian Band Chiefs and Councils, staff of Indian interest groups including the Treaty and Aboriginal Rights Research Centre, Tribal Councils, the Northern Flood Committee and others, and with departments and agencies of the provincial government.

The section works towards the timely and orderly transfer of land to the federal government for the use and benefit of Indian Bands after identification and selection by the bands and clearance through the provincial system to ensure suitability and availability.

Table LA.2
Expenditure by Sub-appropriation 12-6(b) (Crown Lands Administration)

6(b) Crown Lands Administration	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	670,800	20.00	746,400	(75,600)	
Total Other Expenditures	113,500		182,600	(69,100)	1

Explanation Number:

1. Variance due to fewer than anticipated requests for land appraisals required for Crown land sales.

Regional Management

The objectives of the Regional Management Section are to co-ordinate Crown land allocations and related transactions so that concerns of all branches and departments are fully considered prior to the allocation of any land.

The section liaises with various government departments, community councils and communities in the delivery of land contracts for a variety of land uses. Examples include cottaging, housing, timber and mining requests, wild rice, sales and leases and Agricultural applications.

Regional Land Managers chair planning and resource planning committees and provide recommend actions on land use management plans and resolutions of land-use conflicts to the Integrated Resource Management Board and to the Director of the branch as appropriate.

The section ensures that economic development of Crown land is co-ordinated with sustainable development principles.

Table LA.3
Expenditure by Sub-appropriation 12-6(c) (Regional Management)

6(c) Regional Management	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	326,600	7.00	321,200	5,400	
Total Other Expenditures	84,300		87,800	(3,500)	

Crown Lands Registry

The objectives of the Crown Lands Registry are to record Crown lands and related transactions, and to keep the Lands Branch, other departments, Crown agencies and the public informed of these records and those maintained in the Crown Land Information System on microfilm and as hard copy.

In general, the mandate of the Crown Lands Registry is to maintain a secure, complete, accurate and up-to-date record of all Crown lands and related transactions administered under *The Crown Lands Act*; to maintain a secure, complete and accurate historic record of all Crown lands and related transactions; to maintain

computer-assisted system of storage and retrieval of information related to Crown lands; to maintain an accounting of all Lands Branch transactions regarding permits, leases, land searches, sales and other related services, and to provide this information to other branches, departments, Crown agencies and the public as and when requested; and to train users of the Crown Land Information System in data input, maintenance and retrieval, production of reports and documents, and general use of the system.

The Crown Land Registry provides a record of original dispositions of lands in Manitoba, as well as a record of all transactions related to Crown lands currently administered by the Province.

Information is provided daily to law firms, the Land Titles Office, other government departments and agencies, historical societies and the public.

The section explores and implements new methods of disseminating information to the users of the system, and of enhancing quality and availability of the registry's records.

The Province has no central repository for a register of all Crown lands held under all the various departmental and agency acts. The Crown Land Information System has approximately 50% of the total number of land parcels held by government and no other agency has an established automated system for recording the remaining 50%. The section will continue to build towards a complete central Crown lands registry.

Table LA.4
Expenditure by Sub-appropriation 12-6(d) (Crown Lands Registry)

6(d) Crown Lands Registry	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	220,300	7.00	245,400	(25,100)	
Total Other Expenditures	222,500		175,700	46,800	1

Explanation Number:

1. *The cost of maintenance and operation of the Crown land computerized registry system was greater than projected due to increased demands on the system and database reorganization costs.*

Section 9

Parks Branch

A system of provincial park lands has been and continues to be established, developed and maintained, and dedicated to the people of Manitoba for healthful enjoyment and for cultural, educational and social benefits that may be derived therefrom. Conservation and management of flora and fauna; preservation of specified areas and objectives that are of geological, cultural, ecological or other scientific interest; and the provision of opportunities and facilities for the enjoyment of outdoor recreation are the core activities of the Parks Branch.

Administration

The section provides direction to the branch by establishing priorities and guidelines, and ensuring conformity to the branch's policies, departmental missions and government goals, and it assesses the effectiveness of the branch activities, products and programs. It monitors and controls the branch's accounts payable and receivable, secures appropriate staff and ensures their training and development as required.

The section reviewed various work programs to ensure they met the necessary goals, and that programs and facilities are developed according to current and capital spending estimates. The section developed capital and operating programs according to the spending estimates and monitored the expenditures to ensure funds were expended accordingly to *The Financial Administration Act* and departmental policies.

The section managed and coordinated the branch's responsibility of ensuring a fair return for the use of its resources and that user fees are established to recover a reasonable portion of operating costs, to develop and update operating procedures and standards, and to administer the vacation home lot program in provincial parks. Relative to this, the section co-ordinates the development and updating of the Parks Branch Directives Manual, focusing on operation, organization and management aspects of parks. This includes analyzing current programs, park uses, procedures and policies, legislation, risk management and trends.

Representatives of this section met on a regular basis with managers of the Regional Services Branch to ensure activities in Provincial Parks were consistent with branch policies, departmental missions and government priorities.

Leases and Permits Section processed 348 assignments during the year, renewed 72 leases and issued 131 new leases for vacation homes. The request for variances has been high, with 42 variances being reviewed and 3 that will require a variance committee to be convened. The implementation of a community dock program for back tier, remote and isolated cottagers within the Whiteshell is proving to be successful and well received by the public and the Whiteshell District Association. The basic goal of the community dock policy is to regain the lakefront public reserve areas and minimize the number of structures on the lakefront, thus enhancing the aesthetics of the park. In addition various park land use permits were administered covering the activities of commercial fish, wild rice, trapline cabins, scientific research and mining.

The seasonal camping site draw program resulted in a total of 1,310 sites being made available for seasonal camping this year. Seasonal campsites are located in 32 campgrounds within 18 provincial parks throughout Manitoba, with 955 unserviced, 288 electrical and 67 fully-serviced campsites available. Seasonal camping was offered at Birds Hill Provincial Park for the first time and 6 sites at Manipogo Provincial Recreation Park were upgraded to provide electrical service. The fees charged for seasonal camping remained unchanged.

Permits for 172 permanent trailer village sites at Dorothy Lake, Falcon Lake and West Hawk Lake were renewed. Four sites were relinquished and reverted back to be included in the seasonal camping public draw.

A user-friendly publication entitled "Guidelines for Cottagers" was completed and sent to each vacation home lotholder within provincial parks. This publication provides assistance to cottagers applying for a building permit or an application to install or upgrade their sewer/water system.

Table PA.1
Expenditure by Sub-appropriation 12-5(a) (Administration)

5(a) Administration	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	672,200	18.41	720,200	(48,000)	
Other Expenditures	200,400		200,100		
- Grants/Transfer Payments	2,800		2,800		
Total Other Expenditures	203,200		202,900	300	

Park Planning

The objective of Parks Planning are to achieve the branch's mandate of maintaining a system of provincial park lands to conserve and preserve natural and cultural heritage resources, and to provide a range of outdoor recreational and educational opportunities for Manitobans and visitors to the province.

Based on a Systems Plan for Manitoba's Provincial Parks, the section prepares long-range management plans, interim management guidelines, resource management policies, and implementation programs. Management plans involve extensive public input while interim management guidelines and resource management plans are prepared in-house. Potential park lands are also identified through planning studies.

Planning studies were initiated for the Roaring River-Shell River area in the Duck Mountain area and the Steep Rock-Bell River area in the Porcupine Hills, to determine their potential for inclusion into the Provincial Park System. Research includes documenting historical information, interviewing local residents and users, cataloguing natural and sensitive features in the field, and report preparation.

Work began on a review of Natural Region I of the Provincial Park System Plan to identify the potential candidates for park and/or Endangered Species designation.

An archaeological/recreation study team in Atikaki Provincial Wilderness Park confirmed additional prehistoric occupation sites and the viability of an additional canoe route in the park area.

Work on the management plan for Spruce Woods Provincial Heritage Park produced a series of overlays depicting natural features, cultural and historical information, recreational developments, land ownership, adjacent land uses as well as preliminary objectives for the management, development and use of the park. The completion of the Management Plan was temporarily delayed in order to concentrate efforts on the development of a new Provincial Park Lands Act.

The draft management plan for the Seal River is being readied for public review. Upon completion of the plan the Seal River is earmarked for designation as a Canadian Heritage River.

A review of the intensive zones in Whiteshell Provincial Park was undertaken. The Public consultation process regarding recreational development in the intensive zones was instructumental in the preparation of a set of recommendations for management of these zones over the next ten years.

Ongoing planning and improvement of the extensive trails system in Birds Hill Provincial Park were continued. Design assistance was provided to Tourism and other agencies on projects outside of parks.

Policies and procedures on the management of natural and cultural resources were prepared on an ongoing basis and incorporated into the Department's Policy and Procedure Manual.

The tallgrass prairie restoration project at Beaudry Provincial Heritage Park continued during the year. Additional acreage was seeded to native prairie. Due to improved weather, especially greater rainfall in the summer of 1990, previously seeded areas showed greater success. Branch efforts also focused on adapting and improving seed harvesting, cleaning and planting equipment and in establishing an area for multiplying seed of scarce species in the park nursery at the Headingley Correctional Institute.

The Branch entered into a multi-partite cooperative tallgrass prairie restoration project funded by Hoechst

Canada Inc. via Wildlife Habitat Canada. This involves the establishment of research sites on lands owned or managed by Manitoba Highways (along PTH 75 near Ste Agathe), the City of Winnipeg (Kilcona Park) and Manitoba Parks Branch (Beaudry Provincial Heritage Park). The co-operative project will continue for 3 years with the first data to be gathered in the summer of 1991.

Another cooperative project sponsored by Parks, Wildlife and Forestry Branches of the Department of Natural Resources, Wildlife Habitat Canada, Abitibi-Price Inc. and Repap Manitoba, to promote integrated resource management in Manitoba's forests was initiated during the year. The major objective of this joint 5 year Management Project is to develop and implement management practices that benefit both forest and wildlife resources and associated recreational opportunities.

On behalf of the Federal Provincial Parks Council, Planning staff prepared background documents and presentation material on the role of parks in sustainable development and drafted a statement of principles to guide park management within a sustainable development framework. This initiative culminated with the adoption of these principles by Ministers responsible for Federal, Provincial, and Territorial parks at a September meeting in St. Johns, Newfoundland.

Section staff participated in the preparation of a Workbook for Manitoba's Sustainable Development Strategy on Minerals as well as in the preparation of Manitoba's response to the federal governments Green Plan.

In cooperation with the Department of Industry, Trade and Tourism and the Wildlife Branch of the Department of Natural Resources, a study to assess the potential of wildlife viewing as a tourist industry was completed by a consultant. The study included an inventory of wildlife viewing sites, analyses of current and potential market situations, and conclusions and considerations for advancing wildlife viewing. As a result of the study, a government Watchable Wildlife Coordinator has been appointed to develop wildlife viewing in Manitoba.

The section undertook responsibility for co-ordinating the development of legislation under the Provincial Park Lands Act and Regulations, respecting park designation, use and management, activities and fees.

Planning Section continues to be the branch's representative on the Department's Resource Allocation Working Group. A major project of the R.A.W.G. is the development of a new Resource Based Tourism Act which will provide D.N.R. with the authority to issue and enforce licences for all lodge and outfitting activities in the Province, a role currently assumed by the Department of Industry, Trade and Tourism.

Table PA.2
Expenditure by Sub-appropriation 12-5(b) (Park Planning)

5(b) Park Planning	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	585,900	15.00	619,800	(33,900)	
Total Other Expenditures	219,200		217,000	2,200	

Technical Services

The objective of the Technical Services Section is to ensure that within the provincial park system the public is provided with safe, potable water, to initiate and conduct inspection services of sewage and solid waste disposal, and take the necessary action to meet the requirements under the applicable Acts.

The section is required to inform the cottaging community of the standards and procedures necessary to be in compliance with The Provincial Park Lands Act and Regulations; to provide building plan review and approval to cottagers applying for a building permit; and to provide a consistent and effective capital program delivery mechanism in the development and maintenance of park infrastructure.

Vacation Home Building Permits

Cottaging continued to be a popular activity in provincial parks.

In addition to new cottage construction on recently

allocated lots, there has been considerable building development throughout the many earlier established subdivisions. The children of cottagers who took up lots in earlier decades have grown up and now have families of their own resulting in a need for additional living space. With the aging of many existing buildings, more plans are being submitted for building replacement, major additions and additional buildings on site. There is an increasing number of owners who no longer see the family cottage as a simple structure for a summer vacation. A greater number of vacation homes now rival many urban residences both in size and function. In 1990/91 there were 369 building permits issued.

Under the five-year inspection program, there were 1,043 cottage lots inspected. Of this number, 179 were found to be in violation of The Environment Act. At this time, 99% of these have been corrected and 1% are either in progress or have been extended to facilitate new cottages being built. In 1990/91, the number of inspections increased due to favourable weather conditions in October and November. In total 1,719 site visits were carried out at a total of 1,237 lots. The number of site visits required for non-compliance situations and installations took up most of the inspector's time during the summer months.

Water Quality Control Program

Private sewage disposal systems in cottage subdivisions continued to be the major issue of this program. In the Whiteshell Provincial Park there were 105 holding tanks, 14 septic tanks and fields, 27 septic tank replacements, 5 septic field replacements, and 64 sullage pit installations approved.

Respecting water supply and treatment, all public water supplies that were sampled during the year were entered on the computer. This allowed for remedial work on any supply sources that had unacceptable water sample results. In various parks the need to review the use of shallow wells with hand pumps was identified.

Table PA.3
Expenditure by Sub-appropriation 12-5(c) (Technical Services)

5(c) Technical Services	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	206,200	5.00	207,200	(1,000)	
Total Other Expenditures	18,400		25,900	(7,500)	

Park Operations and Maintenance

The objectives of Park Operations and Maintenance are to operate and maintain the Provincial Parks of Manitoba; and to provide high-quality safe and enjoyable outdoor recreational and educational opportunities for the people of Manitoba and visitors to the province.

The section maintains and operates the infrastructure for 147 Provincial Parks in a fashion that will provide opportunities for safe and enjoyable recreational and/or educational activities. It also ensures that the general public complies with the various provincial Acts and Regulations

Capital Programs

The Branch's Capital Program continues to be the main source of funding for upgrading existing facilities, including buildings and structures, roads, marinas, beaches, trails and equipment used to maintain the system. The cost of maintaining the existing facilities represents approximately 80% of the available funds.

Major expenditures within the program included completion of the Paint Lake Lagoon, the start of construction of the lagoons for Clearwater Provincial Park located at Orok Siding, and for Bakers Narrows located at Cuprus Mine Site. A new sewage lagoon was constructed at Brereton Lake in Whiteshell Provincial Park. Water systems throughout the province were upgraded and proper treatment equipment was installed. The new beach safety

program was instituted and major road upgrading was started in many provincial parks with special emphasis on South Shore Road at Falcon Lake. Park infrastructure improvements included resurfacing of tennis courts, restoring the Paint Lake Marina and a portion of the Winnipeg Beach sea wall and the electrification of campsites in various provincial parks. Emergency projects also accounted for reallocation of funds within the program.

Table PA.4
Expenditure by Sub-appropriation 12-5(d) (Park Operations and Maintenance)

5(d) Park Operations and Maintenance	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	9,236,100	326.10	9,241,900	(5,800)	
Total Other Expenditures	2,870,200		2,880,800	(10,600)	

Visitor Services

The objective of the Visitor Services Section is to coordinate the provision of high-quality park experiences with the needs and wants of present and future park visitors. This Section is responsible for marketing activities, interpretation, heritage properties, commercial services and non-profit organizations in parks.

Market Research

Year two of the implementation of the Branch's Three Year Marketing Plan was completed. The plan provides a systematic approach to the marketing of parks. Emphasis has been placed on better understanding park visitors' needs through research activities and using the findings to better match the branch's efforts with those needs.

The University of Manitoba was contracted to complete a follow-up study to a previously completed provincial campground survey. The study examined why certain campers stop using provincial campgrounds. The results showed that the major reason for ceasing camping was related to changing lifestyles (e.g., addition of very young children to the family, purchase of cottage, empty nesters).

A series of focus group studies were conducted to determine the needs of young park users (under 24 years of age) and examine their attitudes to various park enforcement activities. Results indicated that young people come to parks to socialize, to get away from it all and to recreate. Most felt that enforcement activities were necessary and for the most part fairly enforced even when many admitted to pushing the rules to the edge. Results of this survey will be used to help develop a human relations workshop for park enforcement staff.

Preparations commenced for the 1991 Park Visitor Survey. The Survey has been conducted with various park users periodically over the last decade. It allows the public to comment on Parks Branch's performance in terms of staff and facility conditions, as well as providing important demographic information about park users.

The section worked with the Department of Industry, Trade and Tourism, the University of Manitoba and Lakeview Development Inc. on a winter recreation research project. The results provided information on the needs of winter recreationalists in terms of resort facilities. The information is to be used specifically in the planning of the proposed Grand Beach resort development.

The first draft of the Spruce Woods Marketing Plan was completed. The plan helps focus park operations and planning efforts on providing high quality park experiences and maximizing park visitor satisfaction.

Promotional activities included participation in the Manitoba Travel Card Program, a cooperative venture with the Department of Industry, Trade and Tourism and Blackwoods Beverages to promote travel within Manitoba. Parks Branch was represented on the Environment Week Planning Committee and took part in a joint Parks, Department of Environment and

Environment Canada radio and newspaper promotion. The section coordinated activities for Manitoba's involvement in the first nation-wide Parks Day Celebration.

Also, the section continued to provide opportunities for Manitobans to become more involved in their parks through cooperating activities.

The Volunteer Campground Host Program successfully continued with 11 host positions in 9 campgrounds. Hosts volunteered a total of 5,686 hours and made 16,232 personal contacts with park visitors, almost double the numbers from 1989.

Two of three park cooperating associations (Friends of Spruce Woods Inc. and the Descendants and Friends of Hecla Heritage Inc.) continued operations through 1990/91. Cooperating associations are volunteer organizations dedicated to promoting and enhancing existing programs and services within a park. The friends of Whiteshell Inc. ceased operations in December 1990.

A number of interest groups and clubs throughout the province took part in a variety of cooperative projects including beach and shoreline improvements at Rivers Provincial Recreation Park, beach improvements at Pelican Lake Recreational Park, orienteering courses in Spruce Woods Provincial Heritage Park and Turtle Mountain Provincial Park, a snowmobile warming shelter and 40 trail-use ethic signs in Whiteshell Provincial Park and a tall grass prairie restoration project in Beaudry Provincial Heritage Park.

Interpretation

With completion of the Interpretation Resource Inventory and revision of the Strategy, guidelines are in place for interpreting Manitoba's park system to 1996. Both documents are to be reviewed at regular intervals.

The field program was delivered by 3 departmental interpreters, supplemented by 12 summer interpreters from May to September. Interpreters contacted 57,334 visitors at park events and at museum/visitor services facilities.

Upgrading of field facilities included the Falcon Lake and Hecla amphitheatre sites. Video playback equipment was purchased for five sites to diversify programs offered to park visitors.

New products/facilities included the Fish Station museum at Hecla, interpretive and orientation signs for the Rivière Sale Trail at St. Norbert and the Spruce Woods park map. The Sioux Pass Marsh signs were awarded 1st prize in the "trailside exhibit" category at the awards competition sponsored by the National Association of Interpreters (US).

Heritage Properties

The program to restore buildings and revitalize Hecla Village in Hecla Provincial Heritage Park continued during the year. After extensive inspections of the existing buildings, architectural plans were completed. Construction is well underway on the school, the boarding house and the frame house.

Commercial Operations

Improved cooperation with private sector commercial operators to develop a positive business environment and enhance services to park visitors constituted the emphasis for the activities of this section.

The number of private sector commercial operations functioning within Manitoba's Provincial Parks rose by 13% during the 1990/91 fiscal year to 175. These operations include restaurants, stores, lodging establishments, golf courses, marinas, fuelwood concessions and septic pumpout services. There were 33 new and renewed lease agreements concluded in this period.

Following a public proposal process, the operation and maintenance of the former Norquay Provincial Recreation Park was transferred to a private operator. This arrangement included the sale of land, equipment and assets on site.

Additional proposal calls and public tenders are being investigated to continue the process of attracting businesses to establish in parks and directly contribute to their surrounding local communities.

Table PA.5
Expenditure by Sub-appropriation 12-5(e) (Visitor Services)

5(e) Visitor Services	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	445,000	11.00	445,800	(800)	
Total Other Expenditures	67,100		76,900	(9,800)	

Grant Assistance

To provide financial assistance to the International Peace Garden, Fort Whyte Centre for Environmental Education, and the Federal/Provincial Parks Council.

These contributions on behalf of the people of Manitoba go towards the upkeep of the International Peace Garden and the Fort Whtye Centre for Environmental Education. The grant provided to the Federal/Provincial Parks Council represents Manitoba's share to this national organization to assist them in the promotion of parks for everyone.

Table PA.6
Expenditure by Sub-appropriation 12-5(f) (Grant Assistance)

5(f) Grant Assistance	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Other Expenditures	....		....		
- Grants/Transfer Payments	130,000		130,000		
Total Other Expenditures	130,000		130,000	0	

Regional Park Management

The objectives of the Section is to plan, manage and evaluate the regional component of the Provincial Parks System and to assist other agencies and groups by serving as an outdoor recreational specialist.

The 7 Regional Parks Managers participate in planning, setting priorities, allocating and evaluating the annual budget, and administering park policies and procedures. The section is the liaison between inter- and intra-governmental agencies, industry and special interest groups. It manages the delivery of the interpretative/ educational programs of the branch.

The section identifies the needs, issues and priorities respecting the preservation/ conservation and economic development of natural and cultural resources, and prepares plans for the development of outdoor recreational areas.

Table PA.7
Expenditure by Sub-appropriation 12-5(g) (Regional Park Management)

5(g) Regional Park Management	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	340,500	7.26	325,400	15,100	
Total Other Expenditures	71,600		70,000	1,600	

Section 10

Regional Services Branch

The mission of the Regional Services Branch is to provide field services in support of departmental programs and legislation to ensure the sustainable development of provincial natural resources.

The branch enforces resource Acts and Regulations; provides field services to support the development and delivery of resource management programs to the public and other government agencies; operates and maintains Provincial Parks; manages forest-fire prevention, detection, pre-suppression and suppression programs; co-ordinates hunter-safety training; responds to complaints of problem wildlife; co-ordinates the department's legislative program; and provides a public information service.

Branch programs and activities are implemented by staff in eight regions which are in turn subdivided into districts, each with its own office. Regional and district operations are supported by headquarters staff.

Administration (Headquarters)

The Headquarters Section is responsible for the following.

Program Direction and Co-ordination to ensure the cost-effective use of available resources. This is accomplished on an ongoing basis through the development of operational guidelines, the establishment of organizational standards and controls, and by monitoring and evaluating effectiveness of individual and program performance.

Financial and Administrative Support Services. The development and maintenance of appropriate financial controls and reporting and monitoring systems are significant ongoing activities.

Staff Training and Development. Specialized training is provided to enhance staff safety and effectiveness. Among the courses held in 1990-1991 were Advanced Tactical Driver Training, Firearm Safety, Officer Safety and Self Defence, Fire Investigations, Park Foreman Seminar, Essentials of Supervison, Emergency First Aid, C.P.R., Boat Safety, Animal Control, Officer Safety and Self Defense, Computer Training, Natural Resource Officer Trainee Orientation and Testing, Park Patrol and Beach Safety Officer Training, Dangerous Goods/Emergency Response, and Scaling.

Enforcement and Court Services. The provision of advice to field staff on the interpretation and enforcement of resource legislation and the maintenance of court records are major ongoing activities. Interpretations related to the Charter of Rights and Treaty Indian rights continued to demand attention. Tables RS.1 to RS.3 show the most common violations under The Provincial Park Lands Act, The Wildlife Act, The Fisheries Act (Canada), The Fisheries Act (Manitoba) and The Freshwater Fish Marketing Act. Table RS.4 is a 10-year summary of prosecutions related to wildlife, fisheries, parks and migratory birds. Table RS.5 is a summary of all prosecutions and warnings for violations of legislation enforced by the branch.

Table RS.1

Most Common Violations under The Provincial Park Lands Act, 1990-1991

Offence	Prosecutions	Convictions	% Convicted	Warnings	Total Offences
Caused Disturbance	93	77	83	178	271
Parked Illegally	35	33	93	14	49
Pets on the Loose	7	7	100	22	29
Disobey Order of Officer	19	17	93	4	23
Damaged/Defaced Park/ Public Property	14	14	100	8	22
Unauthorized Fire	8	7	88	12	20
Operate Vehicle in Non-designated Area	12	12	100	6	18
Other	80	82	85	47	127
Total	268	249	93	291	559

Note: ***Total Fines: $14,807 Average Fine: $59.47 Total Costs: $4,719***

Table RS.2

Most Common Violations under The Wildlife Act, 1990-1991

Offence	Prosecutions	Convictions	% Convicted	Warnings	Total Offences
Hunting on Private Land Without Permission	140	109	78	28	168
Nightlighting	141	102	72	4	145
Loaded Firearm	109	103	94	7	116
Hunting Without Licence	20	12	60	16	36
Hunting Out of Season	29	22	76	7	36
Possess Illegally Taken Animal	20	12	60	2	22
Other	280	221	79	262	478
Total	239	581	79	262	1,001

Note: ***Total Fines: $114,007 Average Fine: $196.35 Total Costs: $34,121.40***

Table RS.3
Most Common Violations under *The Fisheries Act* (Canada), *The Freshwater Fish Marketing Act* and *The Fisheries Act* (Manitoba), 1990-1991

Offence	Prosecutions	Convictions	% Convicted	Warnings	Total Offences
Sport Fishing					
Fail to Use Barbless Hooks	338	330	98	388	726
Fail to Carry/Produce Licence	63	54	86	392	455
Sport Fishing Without a Licence	151	128	85	36	187
Exceed Limit	131	129	98	22	153
Angle With Too Many Lines	86	79	92	11	97
Transport Unidentifiable Fish	21	21	100	20	41
Fish Without 25 Yards of Fishway	8	7	88	0	8
Commercial Fishing					
Small Mesh Nets	11	8	73	15	26
Fail to Mark Equipment	13	13	100	13	26
Decayed Fish	11	11	100	0	11
Commercial Fishing Without a Licence	4	4	100	1	5
General Domestic Fishing					
Fish/Possess Fish Without Lawful Reason	22	5	23	23	45
Fish During Closed Season	23	20	87	4	27
Fish/Possess Fish Contrary to Act or Regulations	6	6	100	1	7
Other	145	118	81	124	269
Total	1,033	933	90	1,050	2,083

Note: ***Total Fines: $61,233.60 Average Fine: $65.63 Total Costs: $3,391***

Legislative Services are provided to co-ordinate the development and review of all departmental legislation and regulations to ensure conformity with legal and legislative requirements, and processing to established deadlines.

In 1990-1991, the branch reviewed and assisted in the development of legislation for this and other departments in consultation with the Department of Justice. This included Bills to amend The Wildlife Act, The Wild Rice Act, The Water Resources Administration Act, The Fisheries Act, The Provincial Park Lands Act, The Dutch Elm Disease Act and The Coat of Arms, Emblems and The Manitoba Tartan Act.

Preliminary work on the development of a new Act to provide for Natural Resources licensing of resource based tourism facilities was undertaken. This activity is now dealt with under The Tourism and Recreation Act. Reviews and comments were also provided ie; amendments to The City of Winnipeg Act, respecting repeal of The Rivers and Streams Act, The Boating Restriction Regulations under The Canada Shipping Act and The Manitoba Fishery Regulations under The

Fisheries Act (Canada). Assistance was also provided to the Government of Canada in the development of amendments to The Navigable Waters Protection Act.

Regulations were developed and enacted under The Wildlife Act, The Forest Act, The Surveys Act, The Water Rights Act, The Water Resources Administration Act, The Crown Lands Act, The Provincial Park Lands Act, The Ecological Reserves Act and The Environment Act. Assistance was continued to the Office of Legislative Counsel - Regulations, Manitoba Department of Justice to re-write regulations under The Provincial Park Lands Act to correct ultra vires and enforceability problems.

In September 1990 the department's legislative services function was relocated to the Assistant Deputy Minister's office under the supervision of the Deputy Minister.

Hunter and Firearm Safety Training. This program provides training to prospective hunters and is aimed at minimizing accidental shootings. In 1990-1991, 310 volunteer hunter safety instructors trained 2,720 students.

Since the beginning of the program in 1964 a total of 112,086 persons have been trained (Table RS.6). Annual firearm accidents since the program was established in 1964 are shown in Table RS.7.

Table RS.8 provides statistics on firearm accidents and fatalities over the last 10 years.

Hunter-killed livestock compensation. This program compensates farmers for the loss of livestock accidentally shot by hunters. The objective is to encourage farmers not to post their land as "No Hunting". Five claims were made, of which three qualified for compensation for a total of $2,180. Table RS.9 is a list of claims over the last 10 years.

Guide Licensing. A total of 883 guide licences were issued in 1990-1991 compared to the previous year's total of 803.

Problem Wildlife. In conjunction with the Wildlife Branch, the Headquarters Section assists in the co ordination of funding and procedures related to problem wildlife complaints (Table RS.10).

Enforcement in Provincial Parks. The low tolerance enforcement strategy implemented i Provincial Parks in 1988 was improved in 1989, an again in 1990, resulting in curtailed liquor abuse vanadalism and rowdyism. The focus of the progran was high-use sites such as Grand Beach, Birds Hill an Whiteshell Provincial Parks.

Illegal Harvest of Fish and Wildlife. In the fall o 1990 field staff initiated a "decoy program" involvin the use of deer, moose and elk decoys to assist in th apprehension of those persons involved in illega poaching activities. Decoys were placed in area where activities such as nightlighting, shooting of roads, shooting on private land and hunting out o season were known to occur. Officer safety an effectiveness are greatly improved over traditiona enforcement methods such as night patrols.

The program's first season of operation proved to be a overwhelming success from the perspective o curtailing illegal hunting activity. In excess of 10 charges were laid.

The branch also initiated a computerized Warran Information System (WIS) which is an expansion of th existing (PEN) Prosecution Information System. Th WIS system allows for coordination between the court and actioning police agencies in tracking departmen initiated arrest warrants.

Continued promotion of the Turn-In-Poachers progra (Telephone # 1-800-782-0076) resulted in 745 cal which generated 166 charges and 15 warning (Tables RS. 11 and RS. 12).

Public information services. The department public information phone service line (945-678 responded to approximately 20,000 inquiries.

Table RS.4

Comparison of Wildlife, Fisheries, Parks and Migratory Birds Prosecutions, 1981-1982 to 1990-91

Fiscal Year	Wildlife	Fisheries	Parks	Migratory Birds
1981-1982	897	597[1]	179	69
1982-1983	557	475[2]	108	22
1983-1984	604	555[2]	157	30
1984-1985	561	475[2]	121	41
1985-1986	686	452[2]	226	83
1986-1987	557	494[2]	270	58
1987-1988	594	524[2]	234	41
1988-1989	491	746[2]	304	43
1989-1990	649	875[2]	224	54
1990-1991	739	1,033[2]	268	77

[1]Sportfish violations only are shown for 1981-1982.
[2]Includes The Fisheries Act (Canada) and The Fisheries Act (Manitoba).

Table RS.5

Recorded Violations, 1990-1991

	Prosecutions	Convictions	% Convicted	Warnings	Total Offences
Fisheries	1,033	933	88	1,050	2,083
Liquor Control	672	639	95	20	692
Wildlife	739	581	79	262	1,001
Provincial Parks	268	234	87	291	559
Highway Traffic	159	124	78	103	262
Migratory Birds	77	43	56	43	120
Off Road Vehicles	36	29	81	19	55
Fires Prevention	32	27	84	27	59
Criminal Code	11	6	55	2	13
Environment	29	25	86	16	45
Forest	20	14	70	34	54
Small Vessels	2	2	100	7	9
Crown Lands	1	0	0	7	8
Total	3,079	2,657	86	1,881	4,960

Note: Fines: $250,251.60. Warnings: 1,881. Evictions: 254. Costs: $59,606.68. Prosecutions: 3,079. Trespass (Forestry): 29.

Table RS.6
Hunter and Firearm Safety Program, 1981-1990

Year	Students	Total to Date	Instructors Certified
1981	4,614	83,788	63
1982	4,460	87,248	45
1983	3,315	90,563	58
1984	4,150	94,713	47
1985	2,977	97,690	38
1986	2,922	100,612	28
1987	2,953	103,565	30
1988	2,953	106,518	26
1989	2,479	108,997	37
1990	2,720	112,086	21

Table RS.7
Firearm Accidents, 1964-1990

1964-1968	average 44
1969-1973	average 56
1974-1978	average 54
1979-1983	average 43
1984-1989	average 26
1990	average 22

Table RS.8
Firearm Accidents, 1981-1990

	Accidents			Fatalities		
Year	Hunting	Non-Hunting	Total	Hunting	Non-Hunting	Total
1981	24	10	34	2	2	4
1982	13	7	20	0	1	1
1983	8	12	20	2	3	5
1984	13	3	16	2	0	2
1985	12	14	26	1	0	1
1986	15	17	32	4	0	4
1987	16	9	25	2	1	3
1988	14	12	26	2	2	4
1989	18	9	27	3	0	3
1990	12	10	22	0	3	

Note: *Treaty Indian firearm accidents were not included in accident totals prior to 1985.*

Table RS.9
Livestock Compensation Program, 1981-1982 to 1990-1991

Year Paid	Claims	Claims Paid	Total Paid	Average
1981-1982	21	11	6,300.00	572.73
1982-1983	23	12	13,500.00	1,125.00
1983-1984	26	10	10,518.00	1,051.80
1984-1985	8	5	2,499.04	499.80
1985-1986	6	1	1,820.00	1,820.00
1986-1987	10	8	5,879.47	723.93
1987-1988	15	10	8,720.00	872.00
1988-1989	7	4	4,625.00	1,156.25
1989-1990	11	7	8,553.60	1,221.94
1990-1991	5	3	2,180.00	726.67

Table RS.10
Problem Wildlife Occurrences, 1990-1991

Species	Region									
	NE	NW	SE	SW	E	Int	W	Wh	Species Total	% of Total
Beaver 100%[1]	6	12	107	62	39	89	53	32	400	12
Beaver 50-50[2]	0	0	0	138	0	0	9	0	147	5
Black Bear	85	43	23	30	113	58	45	215	612	19
Polar Bear	145	0	0	0	0	0	0	0	145	4
Elk)										
Moose)	0	0	67	171	17	53	102	4	414	13
Deer)										
Wolf	16	14	15	5	9	27	20	3	109	3
Migratory Birds	2	43	28	75	9	229	84	0	470	14
Other	19	24	334	230	90	168	91	39	995	30
Total	273	136	574	711	277	624	404	293	3,292	100

[1]Beaver 100% refers to areas where costs are supported 100% by the Province.
[2]Beaver 50-50 refers to areas around Riding Mountain National Park where costs are shared 50-50 with the federal government.

Table RS.11
T.I.P. Calls by Region, 1990-1991

Region	Number of Calls					Number of Charges			
	Fish	Wildlife	Other	Fire	Total	Fish	Wildlife	Other	Total
Southeastern	10	215	6	4	235	7	90	3	100
Southwestern	6	125	1	0	132	0	12	0	12
Interlake	16	123	3	3	145	9	16	2	27
Western	3	56	0	0	59	0	12	10	22
Eastern	22	79	3	11	115	0	2	1	3
Whiteshell	4	14	0	8	26	0	0	0	0
Northwestern	4	8	0	5	17	0	0	0	0
Northeastern	4	3	0	9	16	2	0	0	2
Total	69	623	13	40	745	18	132	16	166

Table RS.12
T.I.P. Calls by Year, 1985-1986 to 1990-1991

	1985-1986	1986-1987	1987-1988	1988-1989	1989-1990	1990-1991	Total
Calls Received	417	530	706	615	604	745	3,618
Information Calls	217	123	356	98	72	204	1,070
Offences Dealt With	200	407	313	363	242	418	1,943
Prosecutions	66	138	124	80	102	166	676
Warnings	22	29	34	9	35	15	144

**Includes fire calls commencing in 1990-1991.*

Table RS.13
Expenditure by Sub-appropriation 12-2(a) (Administration)

2(a) Administration	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	1,270,300	31.39	1,285,500	(15,200)	
Total Other Expenditures	1,074,500		1,122,500	(48,000)	

Northwestern Region

The reduction of forest fire hazard levels from recent years allowed for a vastly increased enforcement effort, especially in late spring and early summer. Staff efforts were concentrated on "back country" enforcement and were successful in apprehending record numbers of serious, species management related fisheries offences.

Drought conditions continued from 1989. A heavy, late spring snowfall prevented a fire season that woul have rivalled 1989. A major emergency firefight training program was initiated as per recommendation resulting from the 1989 community meetings. Sta also participated in the formulation of community fi plans with community leaders. Assistance wa provided to the province of British Columbia b northern staff late in the fire season.

Continued low water levels at park's boat launchi areas made it necessary to do more alterations to ma

them usable. Park use was increased without the continued travel restrictions of 1989. Buildings that had been "moth balled" with the closure of Hugo Bay campground at Clearwater Lake have been moved, refurbished and will provide shower facilities and campground offices in Clearwater Lake and Grass River Provincial Parks. The salvaged water system from Hugo Bay was installed at Wekusko Falls Provincial Recreation Park at moderate cost and will be operational for the 1991 summer season.

Despite some concerns by aboriginal people over interpretations of the Migratory Birds Convention Act, department staff maintained a solid relationship with the local native people and negotiated a continuance of the Game Hunting Area 8 Moose Management Agreement. Many meetings were held with native people, and co-management, as required by the "Sparrow" case of September 1990 was underway on many issues.

Table RS.14
Expenditure by Sub-appropriation 12-2(b) (Northwestern Region)

2(b) Northwestern Region	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	1,253,300	35.28	1,242,700	10,600	
Total Other Expenditures	393,100		397,500	(4,400)	

Northeastern Region

The region experienced 172 fires which burned 10,368 hectares. During the year, 748 emergency firefighters were trained.

The old marina system at Paint Lake was completely dismantled in March and a new system using screw type hydro anchors was installed.

Sasagui Rapids campground was turned over to Sasagui Rapids Lodge on a 21 year lease.

The Polar Bear Alert program was once again successful in the Churchill area. There were 136 occurrences, with 69 (compared to 47 in 1989) bears captured. 22 officers from outside the Churchill district were rotated into Churchill to handle the Polar Bear Alert program. Three bears were shipped to zoo's - one to Japan, one to Calgary and one to Winnipeg. A total of 53 bears had to be airlifted out of the Churchill area.

Meetings were held at 16 Indian Reserves in February and March of 1991 to explain the department's position on enforcement (in view of the "Sparrow" and "Flett" cases) when dealing with Migratory Bird and Fisheries legislation.

Assistance was provided to Fisheries Branch in undertaking special projects at Norway House and South Indian Lake.

Table RS.15
Expenditure by Sub-appropriation 12-2(c) (Northeastern Region)

2(c) Northeastern Region	Actual 1990 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	1,311,700	36.48	1,301,500	10,200	
Total Other Expenditures	710,800		700,300	10,500	

Interlake Region

There were 4,593 hunters checked in the Interlake Region this year with 147 charges laid for a compliance rate of 97%. 37 individuals were charged with nightlighting. There were 1,986 waterfowl hunters checked with 15 charges laid for a compliance rate of 99%. 10,714 anglers were checked with 349 charges laid for a compliance rate of 97%.

There were 392 commercial fishermen checked and 39 charges were laid for a compliance rate of 90%. An enhanced enforcement-education program on Lake Manitoba during the winter season accounted for most of these charges. There were 1,937 nets checked with 407 of them found to be illegal. This represents a compliance rate of 79%.

In addition, there were 641 occurrences involving infractions of the various acts and regulations enforced by the department and 299 involving roadkills and other non-regulatory occurrences for a total of 1,564. 47 of these occurrences involved regulatory offences within provincial parks.

The deer decoy program in this region was quite successful resulting in less aircraft time and better cases for prosecution.

Under the Forest Fire Prevention program, approximately 1,000 farmers were visited and talked to regarding wildfire and peat moss fire prevention. In addition, many of the local schools were visited with about 2,000 students being contacted. Meetings were also held with R.M's and L.G.D.'s to discuss burning permits and problems with burning.

The distribution of fire prevention place mats to restaurants has greatly enhanced the program.

There were 38 fires in the Interlake which burned a total of 975.5 hectares. Although spring rains reduced the hazard significantly, a late fall peat fire in the Hodgson area burned off approximately 250 hectares of peat and created smoke problems throughout the area.

There was a new regional fire warehouse built in Gimli. Hodgson district warehouse which was started in 1989 was completed.

Interlake staff responded to 624 problem wildlife complaints during the fiscal year, consisting of 89 beaver, 58 black bear, 58 big game, 27 wolf, 229 migratory birds, and 168 miscellaneous.

A Resource Management Assistant program was instituted at Hodgson with an individual from Peguis Indian Reserve being hired as a liaison officer with the Indian communities.

Table RS.16
Expenditure by Sub-appropriation 12-2(d) (Interlake Region)

12-2(d) (Interlake Region)	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	1,303,900	40.24	1,354,800	(50,900)	
Total Other Expenditures	447,100		462,100	(15,000)	

Southwestern Region

A new enforcement technique involving the use of a wildlife decoy proved successful when used in historic and current complaint areas. This method provides a safe environment for the public, the officer and the violator. In the Southwest Region 22 decoy set ups resulted in 38 wildlife prosecutions.

Enforcement statistics for the fiscal year indicate that staff issued 376 prosecutions and 143 warnings. 43 of these were nighthunting charges. District occurrence reports totalled 1,632, of which 719 were related to problem wildlife, 558 were regulatory and 355 were non-regulatory.

There were only 2 fires requiring action by field staff. Fire fighting crew boss and crew member certification training was carried out with members of the Sioux Valley, Birdtail Creek and Lizard Point Indian Reserves. A total of 10 - 5 person crews were certified.

Meetings were held with several rural municipalities to establish a mutual assistance plan for fighting forest fires.

A change in hay lease arrangements in the Spruce Woods Provincial Heritage Park enabled the department to retain a percentage of production for use for problem wildlife and intercept feeding.

At the Rivers Provincial Recreation Park the playground was relocated and 15 additional electrical sites were installed.

Although agreement renewal negotiations were still underway with Parks Canada, the Riding Mountain Beaver Control Program continued with 184 complaints actioned, 406 beaver and 413 beaver dams removed within the program area. Due to the lack of trapping interest, coyote and fox predation on domestic livestock was at a high level.

Staff in the Southwestern Region were very active within their respective communities with presentations, speaking engagements and information meetings.

Staff were called on a number of times as guest speakers at Brandon University classes on Natural Resource subjects. Manitoba Natural Resource Officers instructed a driver training course at Rivers for 10 Saskatchewan Natural Resource Officers who were to act as instructors in their own province.

Field staff assisted all branches of the department with their general field programs with special emphasis on wildlife surveys, reforestation in Conservation Districts and fisheries aeration projects. Regional Services staff also assisted the Hartney Wildlife Association in a special project to capture and relocate 100 wild turkeys that had previously been released and had congregated in one farmer's yard.

A new district office was completed in Manitou.

Table RS.17
Expenditure by Sub-appropriation 12-2(e) (Southwestern Region)

2(e) (Southwestern Region)	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	888,800	26.11	907,400	(18,600)	
Total Other Expenditures	288,000		291,100	(3,100)	

Western Region

Special enforcement initiatives and strategies were developed and employed to deal with harassment and destruction of Lake Winnipegosis colonial waterbird nesting areas.

Natural Resource Officer staff assisted Environment Officers with investigation of a major sewage spill in the Valley River. Staff also assisted Saskatchewan Resources staff on cross border investigations.

There was an increase in the number of reports received concerning night hunting and sale of wildlife and fish.

The use of wildlife decoys to apprehend violators proved to be a valuable and effective enforcement tool for Natural Resource Officer staff. Such a program was instituted in Manitoba during the fall of 1990 in order to maximize officer safety and improve enforcement effectiveness. In the Western Region 24 decoy set ups resulted in 33 wildlife prosecutions. There were a total of 382 prosecutions and 133 warnings regarding Natural Resource legislation in the region for the fiscal year under review.

Although there was an early spring breakup, wet snowfalls in late April resulted in very light spring fire activity. A total of 19 fires were actioned within the regions wooded district.

Cooperative programs were instituted with a number of Indian Reserves regarding the issuance of burning permits on reserve lands.

Meetings and a letter of understanding formalized fire prevention and suppression arrangements between the department and Riding Mountain National Park.

A fire plan was completed for the Westlake Wildlife Management Area.

Two fire command trailers were constructed in the region.

A system of regular potable water testing and recording was instituted at all park facilities in the region.

Construction in Western Region parks consisted mainly of a shower/toilet facility and new liquid waste cell at Wellman Lake, and improved handicap facilities, a new campground office and enlarged parking and boat launching at Whitefish Lake.

Preparations were made for Manitoba Hydro to take over the electrical system in Asessippi Provincial Park.

Low water levels in Lake of the Prairies caused major concerns for operators of boat launch facilities.

The usual heavy elk depredation on crops in the Swan Valley did not occur. Additional hunting seasons, hay enclosures, weather conditions, improved forage conditions on the Duck Mountain and Porcupine Hills peripheries are largely the reason. Complaints dropped from 91 in 1989/90 to 61 for the year under review.

Mange was a serious problem with foxes and coyotes. There was a slight increase in predation problems involving these animals and black bears.

High cormorant populations caused numerous complaints from commercial fishermen in the Lake Winnipegosis area. New Castle's disease affected a significant portion of the population with fairly large die-offs noted by field staff.

Staff of the Western Region were involved over the year with the Swan-Pelican Advisory Board, Swan Valley Fish Enhancement Group, Cottage and Seasonal Campers Associations, Riding Mountain Liaison Committee and Swan Valley Elk Management Board. Various meetings were attended with rural municipalities and local government districts to discuss beaver and fire problems and with Indian Bands re; trapping, fishing, fires and hunting rights. In addition, resource workshops were held at a number of high schools and Indian Reserves.

60th Anniversary and Forestry Week displays were erected and staffed at a number of locations in the region.

Regional Services staff provided assistance to other branches throughout the year in such programs and projects as wildlife surveys, data and wildlife carcass collection, reforestation, fisheries habitat enhancement and elk capture and relocation. Staff also played a major role in the development of an ungulate management plan for Riding Mountain National Park and surrounding Game Hunting Areas 23 and 23A. Natural Resource Officers spent considerable time assisting Forestry Branch in the transfer of timber administration to Repap.

Table RS.18
Expenditure by Sub-appropriation 12-2(f) (Western Region)

2(f) (Western Region)	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	1,334,100	39.00	1,368,500	(34,400)	
Total Other Expenditures	408,000		419,000	(11,000)	

Southeastern Region

Under the Migratory Birds Convention Act and Regulations, 3 warnings and 27 charges were laid. Under the Fisheries Act and Manitoba Fishery Regulations, 202 warnings were issued, mostly for using barbed hooks and 94 charges were laid, the majority of which were for over limits or fishing without a licence. A total of 14 charges were laid for commercial fishing violations as a result of checking 385 nets, 47 of which were seized. Under the Fires Prevention Act, 4 warnings and 3 charges were laid and 4 warnings were issued under the Forest Act. There were 62 warnings and 117 charges laid under the Wildlife Act and Regulations and 5 charges laid under the Clean Environment Act and Regulations. Enforcement under the Off Road Vehicle Act resulted in 4 warnings and 3 charges. 1 charge was laid under the Criminal Code. Under the Park Lands Act and

Regulations, 43 warnings were issued and 11 charges laid, with 29 evictions carried out. Under the Highway Traffic Act, 7 warnings and 28 charges were laid and 79 charges were laid under the Liquor Control Act. A total of 575 enforcement related occurrences were dealt with during the year.

A deer decoy program was implemented with success. Modifications are expected to further enhance its effectiveness in the future.

An early melt and warm weather in March, coupled with a dry windy April created high fire hazards in the spring. Thereafter, timely rains reduced the hazard until fall when fine fuels and peat soils were extremely dry. A total of 22 wildfires required suppression action and all were extinguished with a minimum loss of resources.

An enhanced spring fire hazard reduction program was carried out to reduce man-caused spring wild fires and was extremely successful.

A Fire Prevention Patrolman was used to educate rural residents in safe-guarding their property from fire and also in safe burning practices and to generally present the fire prevention message. The rural public were extremely pleased to receive this information.

In general, park use declined, except at St. Malo and St. Ambroise Beach Provincial Recreation Parks which showed an increase in use. In Beaudry Provincial Heritage Park, winter use of cross country ski trails plus summer bike use and use of walking trails dramatically increased. The region's complement of parks was reduced by the privatization of Norquay Provincial Recreation Park, which was sold to a resident of Poplar Point.

The region dealt with a total of 574 problem wildlife occurrences, the majority of which were recorded in the Winnipeg District. The lack of activity by trappers due to the very low prices increased the number of complaints related to beaver, coyotes and other fur bearers. A total of 107 beaver complaints and 15 wolf/coyote complaints plus 334 other animal and bird complaints were actioned. 23 black bear complaints from park cottage areas and small communities were actioned. 28 migratory bird depredation complaints were received. 67 big game complaints were received, mostly complaints of deer feeding on specialized crops grown throughout the area.

Good community relations were maintained throughout the region. The Fire Control Officer and Natural Resource Officer attended a council meeting in each rural municipality and local government district. As well, numerous meetings with resource user groups and cottage and camper associations were held.

The region assisted other branches with a number of projects. For example, manpower and equipment were provided to clean up and restore the Fort Dufferin historic site near the town of Emerson. Also a road maintenance crew and equipment were used in the tree planting and silviculture programs to move equipment and improve trails to planting sites, etc. The repair shop at Marchand repaired equipment for all branch operations in the area. Staff assisted Fisheries Branch with a research project on catfish in the Red River. Staff inspected and reported on ecologically significant sites as required.

The regional office was decentralized from Winnipeg to Steinbach during the year. This transition occurred with few problems and is now completed.

The Risk Management program and the pits inspection concept were begun in order to identify areas requiring improvement for public safety.

Table RS.19
Expenditure by Sub-appropriation 12-2(g) (Southeastern Region)

2(g) (Southeastern Region)	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	1,139,800	35.28	1,212,900	(73,100)	
Total Other Expenditures	337,900		333,700	4,200	

Eastern Region

In the Eastern Region 4009 sport fishermen were checked and 116 charges laid for a compliance rate of 95%. A total of 1,531 hunters were checked with 42 wildlife related charges laid for a compliance rate of 98%.

The deer and moose decoy program was introduced to the region with 13 operations being conducted which resulted in 10 charges being laid.

A total of 228 wildlife and fisheries regulatory complaints were received and actioned as compared to 236 in 1989/90.

A total of 1,526 regulatory and non-regulatory occurrences were dealt with in the region; this compares to 1,152 in 1989/90. Eight-five charges were laid under the Provincial Park Lands Act and Regulations and 209 under the Liquor Control Act. One hundred and twenty groups were evicted from provincial parks in the region.

The Region had 140 fires of which 71 (51%) were human caused. This compares to 67 (26%) human caused fires in 1989/90.

The fire detection program detected 33 of the 140 fires. The average size of the fires on detection was 2.0 hectares. The average size of fire in the Red Priority Zone of the region was 7.0 hectares. This compares to an average of 656.6 hectares in 1989/90.

The Fire Prevention Officer made 1,100 prevention contacts throughout the region. A total of 359 people received fire suppression training.

Peat fires dominated the fall work program with 66 peat fires being reported. The department had to take action on 10 of these at a cost of $250,000.00.

Grand Beach and Birds Hill Provincial Park were the most heavily used with 30,382 camping days being provided. These parks had a total of 36 Special Events with the 17th Annual Folk Festival in Birds Hill attracting 32,353 visitors as compared to 37,537 the previous year.

The anti-rowdyism campaign continued and met with good success with a special focus at Grand Beach and Birds Hill Provincial Parks. Extra staff were brought in on long weekends to supplement the regular staff. At Grand Beach a total of 170 charges were laid on long weekends as compared to 174 in 1989.

A revised Beach Safety Program was introduced at the three main beaches in the region i.e. Birds Hill and Grand Beach Provincial Parks and the previously unsupervised Patricia Beach Provincial Recreation Park.

There were a total of 279 reported occurrences concerning problem wildlife including 41 beaver, 17 big game, 113 black bear, 9 migratory bird, 9 wolf and 90 miscellaneous complaints. This total was up from 227 in 1989/90.

Staff continued to foster community relations with all user groups. These included native organizations, Indian bands, cottagers, landowners, local municipal governments, industry and the education system. The focus was on fire prevention, sustainable development and co-operative management. One prime example was the integrated resource management approach to the Abitibi 8 Year Operating Plan.

Table RS.20
Expenditure by Sub-appropriation 12-2(h) (Eastern Region)

2(h) (Eastern Region)	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	1,171,900	34.29	1,179,000	(7,100)	
Total Other Expenditures	343,300		352,900	(9,600)	

Whiteshell Region

Muzzle load hunting for deer was on the upswing with success appearing to be good. Enforcement activity resulted in 57 charges and 150 warnings under Manitoba Fishery Regulations. 1,130 big game hunters and 4,512 sport fishing anglers were checked.

Department of Natural Resources/Fire Commissioner held an inter-agency co-operation event at Falcon Lake with a demonstration of methods of hooking Fire Commissioner equipment to Department of Natural Resources equipment to operate sprinklers and to pump water over long distances. There were a total of 63 fires in the region. Fire suppression staff, including the Nutimik firetac crew were deployed to assist British Columbia's firefighting efforts.

June was an extremely wet month, with a record 239.6 mm of rain at West Hawk Lake. Whiteshell Provincial Park had closures of canoe routes, temporary closure of hiking trails, and road wash-outs in cottage subdivisions, campgrounds and forestry roads. All private and public docks were submerged in the West Hawk Lake and Caddy Lake areas for nearly two weeks.

A spring meeting was held with concessionaires and park user groups to bring them up to date on projects and activities in the region. District Natural Resource Officers as well as representatives from other Natural Resource branches attended.

The anti-rowdyism campaign was in effect for the May long weekend and combined with lower occupancy rates than the previous two years, resulted in a reduction in problems. One hundred and sixty-nine charges and 4 warnings were issued under the Liquor Control Act, 130 charges and 167 warnings under the Provincial Park Lands regulations and 48 charges and 55 warnings under the Highway Traffic Act.

A regional review of facilities in all districts was conducted to ensure compliance with maintenance standards and to identify potential risk areas requiring improvement.

The twinning of Falcon Lake/Rennie snowmobile trails was completed. This increased the use by 50% and dramatically improved safety. Other trail improvements included widening in some areas and straightening of some curves. Snowmobiles and cross-country ski trail use was fairly high in January.

Falcon Lake ambulance responded to 266 calls.

Falcon Lake Golf Course received many compliments from the general public about the improvement in the condition of the course. 26,517 rounds of golf were played, up 2,765 from the previous year.

Wolf sightings increased. There was limited activity on traplines due to low fur prices. Bear problems were very high during the summer months and a lot of time was spent actioning complaints.

There was a 90% wild rice crop failure in 1990. Only hand harvesting was allowed.

Bannock Point rehabilitation crews worked 4,988 staff days at various projects throughout the region.

Five year forestry cutting plans were implemented in May, 1990.

Table RS.21
Expenditure by Sub-appropriation 12-2(j) (Whiteshell Region)

2(j) (Whiteshell Region	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	781,700	23.13	788,400	(6,700)	
Total Other Expenditures	266,100		265,600	500	

Fire Program Development and Evaluation

In 1990, Manitoba recorded 570 forest fires, down considerably from the record breaking season of 1989. These fires burnt 16,365 hectares of forested area, also down considerably from the 1989 season and one of the lowest annual losses on record. Funds totalling $20,485,800 were expended during 1990 on fire operations. Tables RS 22 and RS 23 provide a summary of numbers of fires (human caused and lightning) and area burned for the period 1980 - 1990. Table RS 24 provides a break-down of fire causes for 1990.

As a result of the 1989 fire season and the reviews carried out, several new initiatives were implemented

for 1990. A major refinement was a new Alert Response System. This system allows for the strategic placement of manpower and resources to combat forecasted fire problems. In 1990, the Alert Response System was a significant contributor to the success of the suppression program which kept losses well below normal.

The forest fire season started early in April with spring fires in the southern portion of the province. Additional trained initial attack fire crews were deployed into the south from northern Manitoba to assist in the suppression of these fires. These actions proved very successful. Following the successful spring season, action shifted into the north during the summer fire period. Only one fire escaped initial attack objectives in 1990. This fire occurred near Wabowden during extreme burning conditions and was the result of a lightning strike. A loaded helicopter patrol was working in the area of the start location, but when the fire was first observed it was already up and running beyond the control of the initial attack crew on board. This forest fire was brought under control within two days of its initial run.

Administration and Headquarters

The effectiveness of the Provincial Fire Centre was enhanced by the acquisition of projection equipment which links the section's weather and operations and by a general modernization of the centre's computer capabilities. Two seasonal staff were added as Fire Intelligence Officers to provide the Director and Provincial Duty Officer with improved data on which to base sound management decisions which allow for the cost effective deployment of suppression resources.

Additional initial attack crews were added in both the Firetac and Helitac Programs and training conducted at their work locations. An extensive training program for emergency firefighters was also delivered to 1,539 people throughout the province. These certified firefighters can now be added to the seasonally employed initial attack crews, thus greatly increasing the ability to react to extreme fire conditions.

Testing and evaluation continued on new suppression equipment and techniques. Manitoba completed the change over of all its threaded fire hose to quarter turn quick connect couplings. Field testing of sprinkler systems using large volume fire pumps and fire trucks supplied by the Fire College of the Fire Commissioners Office was carried out and arrangements put in place to use this equipment if needed to protect communities from forest fires. Fortunately, it was not needed in 1990.

The use of firefighting foam continued in aerial operations and was expanded into ground operations with the acquisition of ground foam suppression equipment and the provision of related training. Two compressed air foam units were added to the suppression equipment available and extensive use was made of a Terragator on ground fires.

NUMBER OF FIRES MANITOBA
1980-1990

Table RS.22

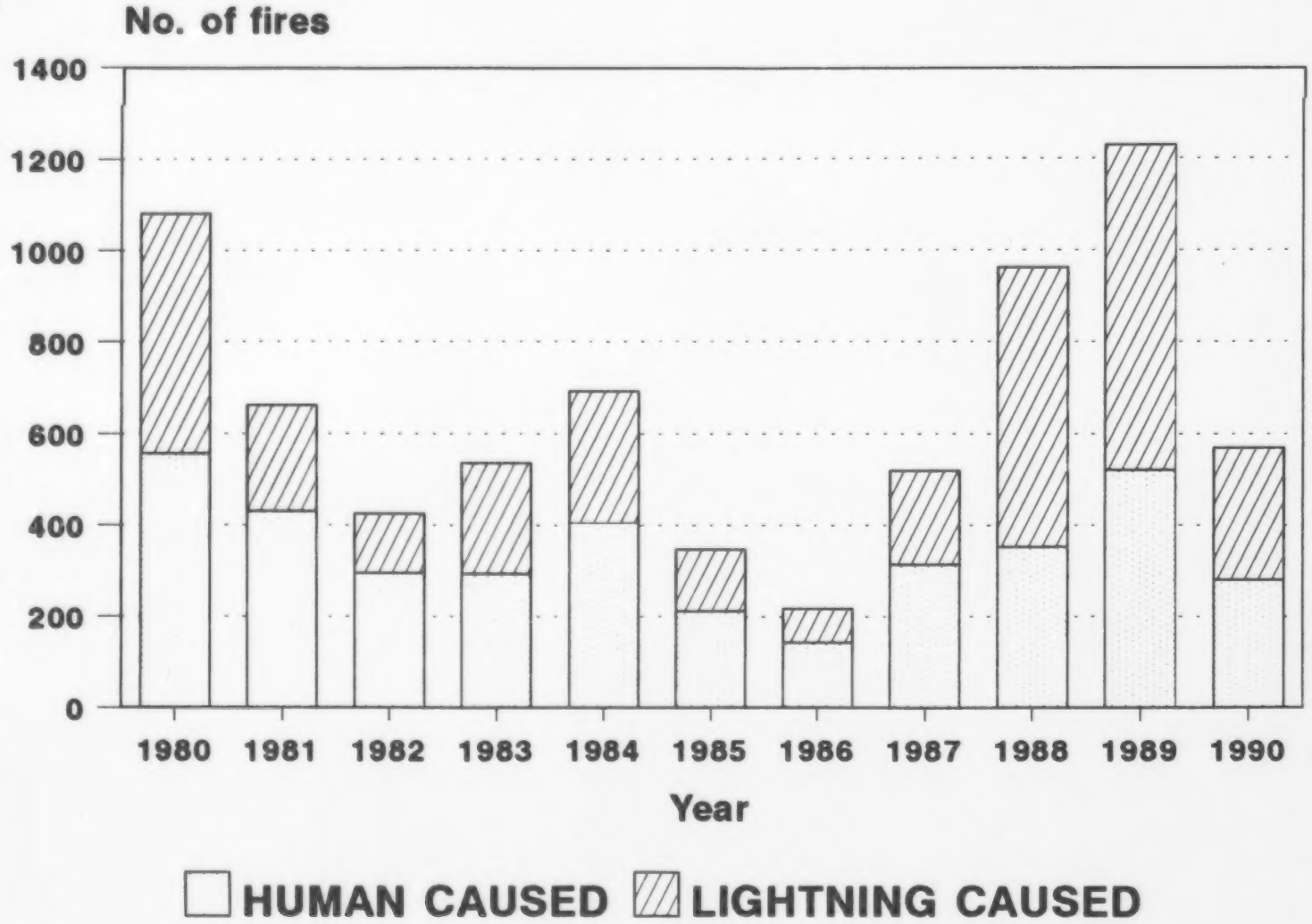


Table RS.23

AREA BURNED
1980-1990

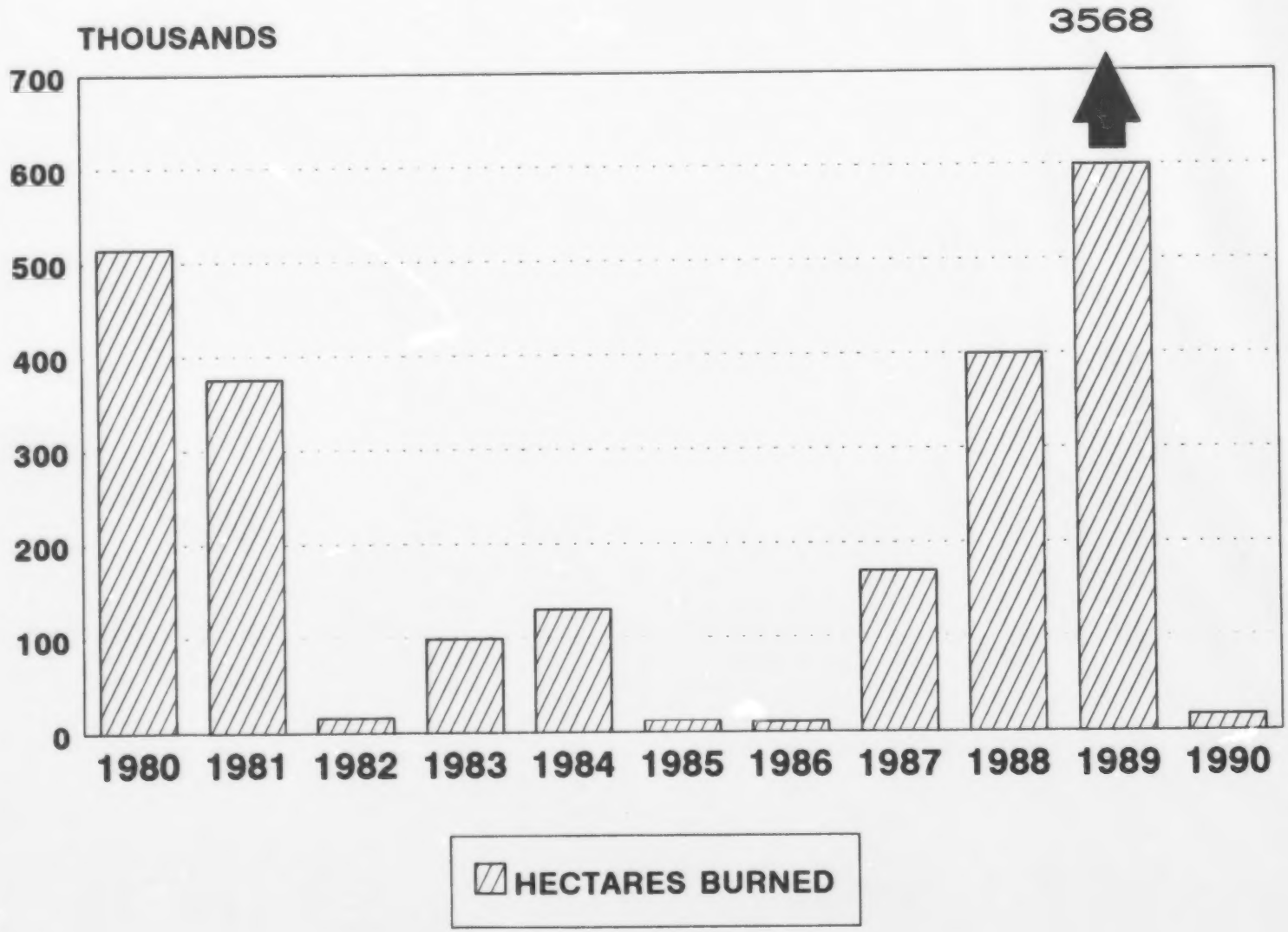


Table RS.24
1990 Fires

Cause	Number of Fires	Percentage	Area Burned (Ha.)
Recreation	98	17.1	570.3
Settlement	60	10.5	532.1
Woods Operations	7	1.3	877.4
Other Industrial	3	.6	8.0
Railways	18	3.2	201.0
Public Projects	9	1.6	274.1
Incendiary	40	7.0	224.1
Miscellaneous	24	4.3	42.6
Agriculture	29	5.3	3208.3
Human Caused	288	50.6	5937.9
Lightning-Caused	282	49.4	10427.1
Total	570	100	16365.0

In-house development of backburning equipment continued with a prototype of a "made in Manitoba" aerial drip torch developed by staff and built by parks staff at Turtle Mountain Provincial Park.
The communication network was maintained and enhanced through regular updating and technological change. Field tests were conducted using a helium filled balloon as an aerial platform for a radio repeater package. The effective range of hand held radios was substantially increased with this equipment which greatly increases their effectiveness on large fires.

Extensive inter-government liaison continued with other fire control agencies within Manitoba, and from other areas of Canada and the United States. In 1990, Manitoba was able to lend assistance to other agencies including both waterbomber support and manpower resources. This support included eighty-six fire suppression personnel dispatched to aid British Columbia, and quick strike CL-215 arrangements with Ontario. The Canadian Interagency Forest Fire Centre in Winnipeg was used to co-ordinate this sharing of resources.

The Provincial Forest Fire Centre staff continued to serve the vital functions of planning and co-ordinating fire operations and suppression efforts. The redesign of the Provincial Fire Centre's operation room and the addition of Fire Intelligence Officer staff was instrumental in improving the effectiveness of the headquarters group, and helped improve relations with field staff, the media, public and other interested groups.

Table RS.25
Expenditure by Sub-appropriation 12-2(k) (Fire Program Development and Evaluation)

2(k) (Fire Program Development and Evaluation)	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	227,300	6.04	271,400	(44,100)	
Other Expenditures	218,400		232,600		
- Grants/Transfer Payments	17,000		17,000		
Total Other Expenditures	235,400		249,600	(14,200)	

Fire Detection Program

The electronic lightning detection system provides information to Regional and Provincial Fire Control Centres and was used to dispatch aerial detection aircraft and loaded helicopter patrols. With initial attack crews on board helicopter patrols, fire starts are found and contained very quickly.

Experiments to detect hot spots on fires were conducted with a Forward Looking Infrared Camera mounted on a light helicopter. This FLIR unit was also used by Wildlife Branch staff to experiment with a black bear survey.

Table RS.26
Expenditure by Sub-appropriation 12-2(m) (Fire Detection Program)

2(m) (Fire Detection Program)	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	40,800	2.00	44,500	(3,700)	
Total Other Expenditures	261,600		288,100	(26,500)	

Fire Prevention Program

Seasonal patrol staff and Natural Resource Officers delivered existing prevention programs to forest operators, farmers, recreationalists and the general public. These patrol staff took a special interest in farmers and settlers on whose land peat fires were burning to ensure that proper burning methods were used. They also spent a good deal of time in the fall educating people about smoke control.

Smokey Bear material was again acquired through the Canadian Forestry Association and delivered by the department's Natural Resource Officers and the prevention patrol staff to children, schools and the general public.

Meetings between the department's staff, local government authorities, mutual aid districts and the general public were intensified to ensure a co-operative effort on forest fire prevention and wildfire suppression. These efforts resulted in a decrease in human caused fires from what occurred in 1989. It also resulted in the successful suppression of numerous fires through the joint action of all the agencies involved.

With the emphasis on fire prevention, staff were assigned to assess and develop new initiatives. A toll-free **REPORT FOREST FIRES** number (1-800-782-0076) was established in conjunction with the **TURN IN POACHERS** program. Media advertising along with promotional materials and province wide distribution of place mats were used to educate the public on the need for forest fire prevention.

Considerable time and effort was expended in the development of displays for use in conjunction with the National Forestry Week Program and Manitoba Forestry Association. These materials were used extensively at local malls and festivities throughout the province.

Table RS.27
Expenditure by Sub-appropriation 12-2(n) (Fire Prevention Program)

2(n) (Fire Prevention Program)	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	72,700	2.42	77,800	(5,100)	
Total Other Expenditures	85,700		70,300	15,400	

Fire Pre-suppression Program

In 1990, seasonal Fire Rangers were again employed to assist and support initial attack efforts, fire equipment maintenance and repair and detection activities. Regular maintenance of fire equipment, towers, buildings and other related equipment was carried out by these staff.

The major pre-suppression effort was the design and subsequent delivery of a new and enhanced Alert Response System. This system was the basis for the successful forest fire suppression effort in 1990. Modification and refinement to this system continued over the winter of 1990-1991 to further improve the suppression program.

Another major development in 1990 was the implementation of an Air Attack Program which was used to control efficiency, effectiveness and safety of air operations on wildfires. Two Air Attack Officers were loaned to Manitoba by the Alberta Forest Service to train staff as Air Attack Officers and an Air Attack Co-ordinator was employed on a seasonal basis to assist in developing and delivering this and other air operation programs.

Table RS.28
Expenditure by Sub-appropriation 12-2(p) (Fire Pre-suppression Program)

2(p) (Fire Pre-suppression Program)	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	1,543,400	47.09	1,593,800	(50,400)	
Total Other Expenditures	2,743,200		2,909,100	(165,900)	

Fire Extra-Suppression

1990 was a very successful year in terms of fire suppression in view of the high alert levels and the number of fires that occurred. The 570 fires that occurred consumed 16,365 hectares which is well below average. Aggressive initial attack and the positioning of suppression resources in accordance with the Alert Response System played a major role in this success. A total of 8636.4 aircraft hours were flown in 1990 at a cost of $7,127,088. Of this, 601.0 hours were logged by the province's CL 215 waterbombers, 2615.2 hours by general fixed wing aircraft and 5420.2 hours by helicopters.

The refurbishing of equipment used extensively during the record breaking 1989 fire season and the redeployment of these resources to the regional and district fire caches was completed in the spring. This redeployment assisted the regions in meeting their initial attack objectives throughout the fire season.

Table RS.29
Expenditure by Sub-appropriation 12-2(r) (Fire Extra-Suppression Fund)

2(r) (Fire Extra-Suppression Fund)	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Other Expenditures	11,875,300		12,000,000	(124,700)	

Firetac Program

When the 1990 fire season began, additional funding was made available to allow for additional firetac crews and extensions of time allotments for most existing crews. This allowed for the deployment of northern crews into southern Manitoba to meet the expected spring and fall fire seasons and the movement of southern crews to northern Manitoba during the traditional lightning fire season. This use of trained

initial attack firefighting staff was successful in keeping fire losses to a minimum.

Firetac staff are stationed throughout Manitoba and provide aggressive initial attack capability in all areas of the province. Crews were located at Piney, Marchand, Hadashville, Nutimik Lake, Lac du Bonnet, Pine Falls, Hodgson, Gypsumville, Grand Rapids, Swan River, Mafeking, The Pas, Cormorant, Cranberry Portage, Wabowden, Cross Lake, Norway House, Island Lake, Gods Narrows, Pukatawagan, Nelson House, Oxford House and South Indian Lake.

Table RS.30
Expenditure by Sub-appropriation 12-2(s) (Firetac Program)

2(s) (Firetac Program)	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	239,200	9.38	239,200	0	
Total Other Expenditures	1,031,100		1,053,300	(22,200)	

Helitac Program

The 1990 Helitac Program was expanded, allowing for 4 - 5 person crews at Bissett, Paint Lake and Wekusko, plus mobile crews which were located at either Lac du Bonnet, Nutimik Lake or in the Northwest Region. Each base was equipped with a medium lift helicopter to conduct initial attacks on all wildfires occurring within striking distance. The mobile crews had one medium lift helicopter which was moved to high risk areas throughout the province. The crews in the Helitac program enjoyed an extremely high success rate on fires they actioned and continued to be one of the main forces used in suppressing wildfires.

Table RS.31
Expenditure by Sub-appropriation 12-2(t) (Helitac Program)

2(t) (Helitac Program)	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	429,800	16.28	429,800	0	
Total Other Expenditures	1,700,400		1,721,800	(21,400)	

Section 11

Surveys and Mapping Branch

The mission of the Surveys and Mapping Branch is to provide provincial surveying and mapping systems that support the efficient management of Manitoba's land mass to achieve the department's mission and roles.

The branch provides positional and descriptive information about the Manitoba land mass through a broad range of services which support programs of both the public and private sectors. These services include land descriptions, geographical names management, legal and geodetic surveys, topographical and geographical mapping, map distribution and remote sensing, and computations and data management.

Land Description Services

This program provides land descriptions for Crown land transactions, such as plans of subdivision, land or mineral exchange, and the Agricultural Land Sales Program. It also provides for permits and leases under the Agricultural Crown Lands Act and the Mines Act, in addition to consent and orders of the Minister under The Municipal Act and The Municipal Board Act.

The activity of providing land description service for Crown Lands transactions, mineral exchanges, consents and orders of the Minister is a consistent and ongoing service with major accomplishments not being quantifiable per se and no program ever ending as such.

The requests for service are up slightly from last year with only the emphasis shifting in different categories.

Legal descriptions requests are up by 65% due to a growing client business interest.

Table SM.1
Land Description Services

Requests for Services	565
Legal Descriptions	520
Area Calculations	84
Right-of-Ways Agreements	0
Survey Requirements	18
Ducks Unlimited Agreements	5
Mines and Minerals Reports	34
Consents and Orders	55

Manitoba Geographical Names Program

This program provides for the development and implementation of policies and procedures concerning provincial geographical nomenclature through the establishment and maintenance of toponymic quality control in government documents, the research for and approval of name decisions affecting proposed and established names, and the provision of a commemorative name certificate program.

The Policy and Procedure directive/document establishing the Highway Names Advisory Committee and its terms of reference were approved by the Ministers of Culture, Heritage and Recreation; Highways and Transportation; Industry, Trade and Tourism; Natural Resources and Rural Development.

The Department of Northern Affairs joins Manitoba Telephone System, Energy and Mines, Rural Development, Culture, Heritage and Citizenship, and several branches of the Department of Natural Resources as the newest member of the program's liaison network.

Projects and Activities

Staff dealt with a number of unique inquiries from determining the location of the Manitoba Internment site of Ukrainians during World War I to providing details on the origin and status of a southern Manitoba community to the *Citizens Forum on Canada's Future* (better known as the *Spicer Commission*).

As the Manitoba member on the **Canadian Permanent Committee on Geographical Names (CPCGN)**, the Provincial Toponymist recommended amendments to the draft texts for the publications/brochures: ***Practical Guide to the Field Collection of Indigenous Geographical Names***, the revised ***Principles and Procedures for Geographical Naming***, and the ***Publications of the CPCGN and its Members***.

All official name decisions were disseminated through our ***Cumulative Supplement*** to the ***Gazetteer of Canada-Manitoba, (1981)*** dated June 30th and December 31st, 1990. Three hundred copies of each issue were printed and distributed.

The slide show titled: ***Manitoba's Geographical Names***, was transferred to VHS format and made available to the public through out Department's library.

Manitoba Energy and Mines' mapping staff were provided with digital data on both our alphabetical and map-sheet-sorted name records to assist them in their toponymic quality control. As well, Manitoba Environment received similar data to assist them in identifying features within certain watershed areas.

On August 23rd, program staff participated in a two hour open-line radio program with CJOB's Susan Magas by answering questions from the public on name origins, program responsibilities and its principles and procedures.

A research assistant was employed from July 3rd to September 21st, 1990, to prepare commemorative name certificates, conduct toponymic quality control on mapping projects and enter data into the Manitoba Geographical Names Information System.

New records have information recorded in 'core' data fields including seconds, headwater coordinates, NTS map sheets and the location reference - section, township and range. Work continues on the cross-referencing and verification of digitized coordinates to the nearest second for all old records.

The Manitoba Geographical Names Program is proud of the role it played in the naming of Bartley Island in Island Lake on November 29, 1990. Bartley Island was named after Natural Resource Officer, Keith M. Bartley, who was killed in a motor vehicle accident on November 29, 1989 while actioning a complaint of illegal hunting in the Hodgson area. This particular island was chosen because he had been instrumental in establishing a patrol cabin there while stationed in Island Lake from 1978 to 1983.

Two unique projects involved the reservation of a name for incorporation of an Historical Society in Southern Manitoba and a request from a Councillor of the Rural Municipality of McDonald on the name of a road.

Table SM.2
Manitoba Geographical Names Program

Geographical Name Decisions	73
Commemorative Name Certificates Issued	128
Map Manuscripts Checked	46
Supplementary Name Location Maps Prepared	16
Responses to Inquiries	1,154

Table SM.3
Expenditure by Sub-appropriation 12-10(a) (Administration)

10(a) Administration	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	302,900	8.00	316,800	(13,900)	
Total Other Expenditures	49,100		50,700	(1,600)	

Field Surveys

The Field Surveys Section carries out field operations regarding the maintenance of inter-provincial boundaries and the provincial township survey system, develops a single integrated survey system for legal, mapping and engineering-related purposes, and provides legal surveying services for government land transactions. It also examines all legal plans of survey of Crown lands and maintains the official plan repository.

In the 1990-91 fiscal year, there were no requirements for the restoration of damaged or missing inter-provincial boundary monuments. However, 230 missing section and quarter-section monuments were replaced. There were also 400 monuments upgraded with acceptable integration values established.

The provision of legal surveys to requesting government departments is a continuing service with al

appropriate standards met. There were 57 plans registered and 40 information plans filed.

All plans of survey of Crown Land were examined and approved within an acceptable time frame (10 days), for a total of 50 plans.

Systems are kept up-to-date and operational by using a continuing 1/4 SMY to accumulate legal survey information to be used in land management.

There were 500 vertical and 300 horizontal points established and made available for mapping and other provincial activities.

Table SM.4
Expenditure by Sub-appropriation 12-10(b) (Field Surveys)

10(b) Field Surveys	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	739,500	19.00	720,700	18,800	
Total Other Expenditures	220,600		416,200	(195,600)	1
Total Recoveries	(29,500)		(170,000)	140,500	1

Mapping

The Mapping Section provides a provincial topographic base mapping system capable of supporting the effective and efficient management of provincial resources, prepares geographical (thematic) base maps and related overlays as required by various government agencies for resource management and development, drafts plans of surveys to standards of the Land Titles Office under *The Surveys Act*, and provides consultation services to various projects as required.

Geographic (Thematic) Mapping

Geographic and specialty mapping services were provided to provincial departments and agencies with 94 projects being completed. These projects ranged in size from one to many maps with 374 maps or map-related products being completed during the year.

A sampling of projects undertaken include: Coulson Special Trapping Area Map, Flight Information Map, Northern Airport and Marine publication, Community Boundary Plans (22), Lodge and Outfitters Map, certified plans for court cases (8), Spruce Woods Provincial Park Map, Golf Courses and Farm Vacation Maps, Fire priority Map, 1991, and Knee and Stephens Lakes Depth Charts.

Revisions were made to: Game Hunting Area Brochure, Designated Vehicle Route Maps, Forest Management Unit Map, Health Regions, Hospital and Care Home Maps, School Division Maps (4), Oak Hammock Land Ownership Map, and Black Bear Allocation Map. Reductions were made to 57 Provincial Electoral Maps.

Plan Drafting

The plan drafting unit prepared 77 plans of survey and 28 township diagrams. The unit also completed 310 revision projects related to these plans and diagrams.

Topographic Mapping

Compilation of the 1:20,000 maps of southern Manitoba continued in areas south and west of the City of Winnipeg. Data validation, editing, field proofing and quality control continued on previously compiled data. Thirty-three multi-coloured topographic maps were printed and 33 digital topographic data sets were completed. The digital data sets will be used to support Geographical Information Systems and other digital applications.

The Mapping Section also acquired high level (1:60,000 scale) aerial photography and prepared and printed 87 Township Photo Maps at a 1:20,000 scale. These photo maps are enlargements of the aerial photography which cover a single township and are augmented with place names and names of major roads, populated centres and features.

A major portion of a joint Federal-Provincial mapping project was completed under the umbrella of the Geographic Information Technology Development Program. The program will see the creation of approximately 60 digital data sets which form part of the Southern Manitoba 1:20,000 mapping program. The federal government is paying for the compilation contracts, while the province purchased the photography and is matching the federal contribution

by work in kind to do the ground control surveys, prepare the photography and inspect the work of the contractors. The project is due for completion by the Fall of 1992.

Table SM.5
Expenditure by Sub-appropriation 12-10(c) (Mapping)

10(c) Mapping	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	689,900	20.00	763,600	(73,700)	
Total Other Expenditures	123,900		124,500	(600)	
Total Recoveries	(42,100)		(35,000)	(7,100)	

Map Distribution and Remote Sensing

The Map Distribution and Remote Sensing Section provides a central provincial map distribution service and maintains a provincial air photo library. It also maintains a remote sensing centre for use by government departments and agencies and the public, and provides photomechanical support to all branch mapping projects and the reproduction of material for sale.

Remote Sensing Centre

The Remote Sensing Centre monitors, co-ordinates and develops remote sensing technology in the province. It conducts projects for various government departments for the benefit of sustainable development of natural resources and delivers remote sensing training and use of the technology to government, crown corporations and industry. The centre also strives to foster the growth of remote sensing technology and related aerospace industry in Manitoba through joint ventures and furnishings of facilities and consulting for industry.

The Department of Natural Resources and the federal Department of Energy, Mines and Resources entered into a Memorandum of Understanding (MOU) on the subject of Manitoba's participation in a Radar Data Development Program. The MOU will facilitate the introduction of radar technology to various agencies within government and industry. It will define the level of participation of both parties, the schedule of activities, the anticipated results, and the means of evaluating the program upon completion. The main objective of the program is to evaluate the extent to which remotely sensed radar imagery may be used for natural resources management and environmental monitoring.

The third year of fully operational activities was carried out for the Canadian Crop Information System. Between April to September of 1990, 200 N.O.A.A. satellite images were processed of Canada, and another 600 of the USSR, along with a further 52 global images. This data is used for crop productivity assessment and delivered to agencies to aide in the international grain marketing and distribution. The centre also arranged for this satellite data archive to be produced on the latest CD-ROM technology, which is being marketed commercially to a broad user group.

Work has commenced on a three-year program to map land use/land cover for all of southern Manitoba from LANDSAT satellite imagery. This project is being conducted in order to assess and aid in developing strategies for agricultural sustainable development relative to soil erosion and conservation. A total of 203 coloured maps will be produced at a scale of 1:50,000. The digital data from the mapping will include the integration of soil survey maps and crop residue in a geographic information system so that high soil erosion risk areas may be identified and managed more effectively. Because this mapping is of value to a host of multi-disciplinary agencies, the cost and data will be shared by Manitoba Department of Agriculture, Prairie Farm Rehabilitation Administration, Manitoba Hydro, Ducks Unlimited and the South Interlake Land Management Association.

Based on the success of a pilot project conducted for all of Manitoba, a land cover mapping project was completed for all of southern Canada on behalf of the Federal National Atlas Service for inclusion into their next edition of the National Atlas of Canada. N.O.A.A. satellite imagery at one kilometre resolution was used for the mapping. It is expected that a follow-up project to complete the high Arctic will be conducted. Hard copy maps at various scales and digital data are made available to users.

A vegetation mapping project for Canadian Forces Base, Shilo, was commenced. The project involves a comparative vegetation analysis between 1958 and 1988. Vegetation communities will be mapped at scales of 1:10,000.

Many seminars and lectures were presented to government agencies, interest groups, industry, and educational institutions on the use of remote sensing. There was also a significant increase in the number of tours of the Remote Sensing Centre on the use of satellite image analysis techniques. These were given to groups ranging from one to 20 people and included dignitaries from across Canada and other countries including the U.S.S.R.

Map Distribution

There were 57,517 maps distributed through retail sales and a dealer network that has grown to 80 outlets throughout Manitoba, northwestern Ontario and the northern United States.

In addition to the regular marketing activities of having displays at outdoor-oriented shows, the awareness program was continued for the new mapping products by placing displays of the 1:20,000 photo township maps communities throughout the area covered by the maps.

Air Photo Library

There were 9,461 current aerial photographs added to the library, bringing the total number on file to 802,443. During the year there were 56,377 prints supplied to customers.

Photo Mechanical Lab

During the year 44,346 products were produced in support of the air photo library's customers, the branch's mapping programs, and the mapping activities of other government agencies.

Table SM.6
Expenditure by Sub-appropriation 12-10(d)
(Map Distribution and Remote Sensing)

10(d) Map Distribution and Remote Sensing	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	480,600	13.00	459,300	21,300	
Total Other Expenditures	328,700		376,200	(47,500)	
Total Recoveries	(120,600)		(185,000)	64,400	

Computer Services and Data Management

The section provides services and manages information related to the systematic development and maintenance of a precise, province-wide network of geographical positions for the geodetic (survey) reference framework, the provincial Township (Dominion Lands Survey) System, and the cadastral (Property parcel) survey system. The graphical, positional and attribute data-systems are designed to support provincial digital property mapping and provide an essential component for the effective and efficient management, recording and sharing of land-related information in Manitoba, consistent with the goals and principles of 'sustainable development'.

Appropriate and timely information is distributed in digital and hardcopy formats to government agencies at all levels and to private sector users. These data systems, through their integration with national survey networks, support a multiplicity of public needs and programs of social and economic significance, including administrative systems management, engineering and construction projects, assessment and other mappings.

The section provides a vital service to the branch in the areas of computer systems implementation and management, as well as applications systems development.

Section objectives for the 1990/91 fiscal year included the ongoing development and maintenance of digital positional survey information, along with its pertinent attribute data; the provision of quality geodetic information to government agencies and to the public;

the provision of cadastral data in support of property mapping, L.R.I.S./G.I.S. referencing; the conversion of all precise, spatially referenced data in the province to the North American Datum of 1983 (NAD83); the provision of seminars to further the understanding of data users in the areas of spatial information; the development of a strategy to commit users to the adoption and use of geodetic information referenced to the new national datum; the continuing implementation of provincial standards related to the management of digital cadastral data; the transfer of specialized technology to industry.

Development of digital positional property parcel information and the maintenance (updating) of existing data has been accelerated through system and procedural enhancements implemented during the year. These are necessary to accommodate the significant level of updating resulting from numerous surveys registered since the data was originally developed.

The section provided information to more than 42 agencies from all levels of government and from industry, and responded to more than 230 requests for spatially referenced positions and associated data. The information is essential to the ongoing program of assessment mapping within the City of Winnipeg, to land-related information systems initiatives undertaken by a number of agencies, to certain federal activities within the province, and departmentally by the Forestry Branch for forest management purposes. Data has been provided to several major Crown corporations for surveying, engineering and administrative purposes.

During 1990/91, more than 42,000 new property (ownership) parcels were developed in digital form, comprised of parcel identifiers, more than 160,000 computed parcel corners and an equal number of property boundaries. Some 80% of these have been developed under a joint five-year Manitoba-Winnipeg surveying and mapping agreement which is scheduled to provide a digital representation of the more than 200,000 property parcels within the 'City' by late 1993. The other parcels were developed in rural areas to meet various provincial program needs.

The new international datum, NAD83, an earth model which accurately represents the Canadian and continental landmass, has been adopted by the governments of the United States, Canada and several provinces. Virtually all of the precise survey networks within Manitoba that were in existence prior to the current fiscal year have been re-adjusted and integrated within the new datum. All spatially-referenced information produced during the year was developed directly on the new datum. Transformation of a number of existing secondary survey networks was begun, utilizing a new software system developed jointly by the federal government and the provinces, (including Manitoba); related data are expected to be available for distribution by late 1991.

A number of seminars have been presented to government, industry and academic institutions, and several provincial and municipal agencies within Manitoba have begun the transition to the new datum. The new datum will enable the delivery of a precise and comprehensive system of surveys and maps in digital form, essential to meet the emerging requirements in spatial positioning and land information referencing.

Branch standards have been implemented for the management of cadastral (property ownership) data. Recently published provincial standards developed by the Manitoba Land Related Information System (MLRIS) Standards Committee are being incorporated into existing systems and programs as time and resources permit.

The section provide guidance and support to a number of private sector firms involved in the broad field of land referencing and land information activities. This included assistance with co-ordinate transformation processes, network integration and integration analysis, mathematical adjustment procedures and software modification and distribution. The section has encouraged all land management agencies, whether provincial, municipal or private, to utilize the significant skills, knowledge and expertise resident within the section to improve the quality and usefulness of provincial land-related systems.

Table SM.7

Expenditure by Sub-appropriation 12-10(e) (Computer Services and Data Management)

10(e) Computer Services and Data Management	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	479,600	12.00	493,000	(13,400)	
Total Other Expenditures	140,500		136,400	4,100	

Section 12
Water Resources Branch

Administration

The objective of the Administration Section is to provide the necessary direction and program co-ordination to ensure the optimum development, allocation and conservation of the water resources of the province.

Activities involve the provision of administrative and policy direction to branch programs, control and monitoring of program funds, administrative support and the monitoring of the efficiency and effectiveness of these programs.

The following Acts were administered by the branch.

The Dyking Authority Act
The Ground Water and Water Well Act
The Lake of the Woods Control Board Act
The Rivers and Streams Act
The Water Resources Administration Act
The Water Power Act
The Water Rights Act
The Water Supply Commissions Act

In addition to their branch activities senior management staff participated in the activities of the Prairie Provinces Water Board (Member and Alternative Member), Lake of the Woods Control Board (Manitoba Member), and the International Joint Commission, International Souris River Board of Control (Canadian Co-Chairman).

Table WA.1
Expenditure by Sub-appropriation 12-4(a) (Administration)

4(a) Administration	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	309,200	11.00	386,800	(77,600)	
Total Other Expenditures	114,200		113,300	900	

Water Licensing and Approvals

The objectives of the Water Licensing and Approvals Section are to protect and manage the province's water resource, including allocation of ground and surface water, to ensure sustainable development for present and future generations, and to cost-effectively minimise flood hazard and damage to ensure public safety and property-and-resource protection by administering *The Water Rights Act, The Water Power Act, The Water Resources Administration Act* and departmental and branch policies.

Administration of The Water Rights Act involves granting of licences, or authority, to use water in harmony with the terms and conditions outlined in the Act without compromising the need for sustainable development. Specifically, licences were not required for defined domestic purposes. Licences to use water for other purposes were issued with precedence according to the filing date of the application and the priority of use. Licences were also issued with concern for the uniform and fair distribution of water, and to safeguard domestic water supplies, senior licensees and riparians. Licensing and related activity for the fiscal year are shown in Table WA.2.

Continuation of dry weather conditions into 1990/91 had a significant impact on Water Rights administration. As domestic users and municipalities kept watch on decreasing water supplies, they turned to the province in its role of administering water legislation to insure protection of their needs both present and future. Similarly other licensed water users, notably irrigators, sought assurance that their rights would be protected relative to more junior licensees and those operating without licence. This has led to localized debate and some controversary about how surface water and groundwater supplies should be managed and allocated.

A major factor has been a dramatic increase in attention to inclusion of irrigation in potato production. This has led to growers seeking sources of water and

applying for rights to the water to satisfy production contract provisions and to protect the substantial investment necessary in irrigation equipment.

Table WA.2
Water Licensing

	Surface Water	Groundwater
Applications Filed for Licence Renewal	10	5
Other Applications Filed	85	69
Licences Completed and Sent for Acceptance	124	36
Licences Issued		
Domestic (including Stockwatering)	1	0
Agricultural	0	2
Municipal	2	2
Industrial (including Mining Operations)	0	5
Irrigation (including Wild Rice Production)	62	12
Air Cooling and Heating	7	0
Thermal Electric Generating	1	0
Waterfowl Conservation	42	0
Recreation (Snow making)	1	0
Total Licences Issued	116	21
Complaint Investigation	10	8

Water Resources Branch staff were very active in assessing applications and in explaining the principles of water allocation as established by the Water Rights Act. It has become necessary to refine methodologies for applying the legislation in situations where potential demand exceeds dependable supply.

In some cases local groups have been formed to advise and assist in the management of a particular water source. Currently active groups are the Assiniboine Delta Aquifer Management Advisory Board and the Boyne River Advisory Board. A group known as the Pembina Valley Irrigation Task Force has begun to look at the possibilities of supplementary irrigation based on capturing and storing water from the intermittent streams of the Winkler-Morden area.

Administration of *The Water Power Act* involves issuing and administration of licences for development of water power, calculation and preparation of invoices for collection of water power and land rentals from Manitoba Hydro and Winnipeg Hydro, and periodic estimates of these rentals. Also provided are documentation for removal of water power reserves and licences from Crown lands, and drafts for interim and final licences. The water power and land rental revenue for the 1990 calendar year was $32,789,192.08, corresponding to the generation of 19,833,137,330 kilowatt-hours of electricity. Water power and land rental estimates were provided six times during the fiscal year. Final licences were issued for the Kettle and Long Spruce Generating Stations. A draft renewal licence was prepared for Pointe du Bois Generating Station.

Proposed Crown land uses were assessed on the basis of departmental and branch policies established to discourage inappropriate use of lands subject to flooding and erosion. A total of 419 parcels of Crown land were investigated.

Proposed waterway crossings were reviewed pursuant to *The Water Resources Administration Act* and on the basis of departmental and branch policies. Assessment of 1,122 waterway openings, most requested by the Department of Highways and transportation was carried out to ensure the provision of sufficient hydraulic capacity to minimize flood drainage and hazards to the crossings and adjacent property.

Table WA.3
Expenditure by Sub-appropriation 12-4(b) (Water Licensing and Approvals)

4(b) Water Licensing and Approvals	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	492,500	11.00	506,000	(13,500)	
Total Other Expenditures	32,100		26,300	5,800	

Water Management

The objectives of the Water Management Service are to monitor, evaluate, develop and allocate the water resources of the province to optimise their use for social and economic development; to improve the net productivity of those agricultural lands whose productivity is inhibited by excess water; to administer legislation and policies pertaining to the reduction of damage from flooding, and to investigate both structural and non-structural means of reducing existing levels of agricultural, personal and property damage caused by flooding.

Activities involved the monitoring and operation of 107 provincially owned dams, the Red River Floodway, Portage Diversion and other flood-control works; maintaining 4,320 km of provincial waterways, including crossings; and the reconstruction of waterways, as necessary, within funding limitations. In conjunction with these, planning and feasibility studies were prepared, and the priorisation of water supply and conservation projects, agricultural drainage systems, agricultural flood- and erosion-control projects, dyking systems and other flood-control works were carried out. In addition, studies were done of inter-provincial and international water problems and development opportunities; and of providing a water resources planning service to conservation districts and rural municipalities. Also, all proposed subdivisions, planning statements and development plans and bylaws respecting flooding, drainage erosion and bank stability were reviewed and recommendations made. Flood permits were issued in designated flood areas and compliance was monitored.

Canada-Manitoba Flood Damage Reduction Program

The purpose of this program is to adminster three agreements signed by the federal and provincial governments in December, 1976 namely, to designate urban flood risk areas, to investigate means of reducing or preventing flood damage in flood plains, and to improve procedures for forecasting floods. The latter Agreement, the Flood Forecasting Agreement, expired on September 30, 1989.

This program involves the undertaking of hydraulic engineering studies to map the flood prone areas requiring designation; to produce engineering plans to designate the flood prone urban areas; to initiate and monitor the production, for public distribution, of flood risk maps and brochures about designated flood prone areas.

Flood Risk Mapping and Studies for Flood Damage Reduction

On December 20th, 1976 the federal and provincial governments entered into a flood damage reduction program by signing the Agreement Respecting Flood Risk Mapping and the Agreement Respecting Studies for Flood Damage Reduction. Under these agreements the flood risk portions of urban areas were to be mapped and flood damage reduction measures were to be identified and, where economically feasible, works were to be constructed. The communites that have been mapped and designated are listed in Table WA.4. The communities that have had works constructed are identified under the section "Canada-Manitoba Flood Protection Projects Agreement". This program which terminated at the end of the 1987/88 fiscal year, was extended to March 31, 1996 in January, 1990 by the federal and provincial governments. The Agreement Respecting Flood Risk Mapping received $500,000, and the Agreement Respecting Studies for Flood Damage Reduction received $200,000 in additional funding.

Flood Damage Reduction

During the spring of 1990, the three major flood control works, the Red River Floodway, the Portage Diversion, and the Lake of the Priaries were not required to reduce flooding along the Red River and the

Assiniboine River, respectively. The provided water supply and conservation as well as recreation opportunities.

Through the application of Provincial Land Use Policy No. 11, enacted by Order-in-Council in November 1980 under The Planning Act, the Province exercised control over development in areas subject to flooding, erosion, river bank instability, landslides and subsidence. During the year 500 subdivision applications and 80 development plan and zoning by-law amendments were reviewed. Also 154 Environment Act proposals were reviewed.

After the 1979 flood, the entire 'Red River Valley' from Emerson to Winnipeg was designated a flood area under The Water Resources Administration Act. Under the Act and Manitoba Regulation 266/90, any person wishing to build in the designated area must first obtain a permit from the Water Resources Branch. The permit requires that any structure to be built or erected shall be floodproofed to prevent damages up to the 1% flood level. Fifty-eight permits were processed during the year.

After the flood risk area of the City of Winnipeg was designated pursuant to the Canada-Manitoba Flood Damage Reduction Agreement on February 15th, 1980, the Province amended the City of Winnipeg Act to require floodproofing of structures in the designated area.

Under Section 494.09 of the Act, the Minister may make an order, under certain conditions, to vary the floodproofing criteria established by Manitoba Regulation 439/88R. Seven applications for variance were processed during the year.

During the year Manitoba Natural Resources and the Manitoba disaster Assistance Board of the Department of Government Services initiated a joint program to inventory all floodproofing measures in the Red River Valley constructed after the 1966, 1974 and the 1979 floods. The Engineering and Construction Branch conducted the surveys and the Water Resources Branch evaluated the adequacy of the floodproofing measures as compared to the 1% flood level. Government Services funded the surveying costs. Assessment of the R.M.'s of Rhineland, Franklin, De Salaberry, Montcalm, Macdonald and the Town of Emerson were completed with 55% of the 685 farm sites or individual holdings meeting the requirements.

Table WA.4
Designated Flood Prone Communities

Community	Designation Date
Melita	December 20th, 1979
Wawanesa	December 20th, 1979
Elie	November 5th, 1980
Winnipeg	February 15th, 1980
Souris	October 1st, 1980
Brandon	March 26th, 1982
La Salle	November 26th, 1982
Sanford	November 26th, 1982
Starbuck	November 26th, 1982
Swan River	May 11th, 1983
Lorette	September 13th, 1984
Carman	June 13th, 1984
Dauphin	February 15th, 1984
Arborg	November 5th, 1987
Fisher Branch	November 5th, 1987
Riverton	November 5th, 1987

By the end of the agreement, studies had been completed for Brandon, Brunkild, Carman, Dominion City, Emerson, Letellier, Morris, Rosenort, St. Adolphe, St. Jean Baptiste, Ste. Rose du Lac, Souris and Wawanesa.

Washow Bay Water Management Project

The objective of the project is to upgrade the existing drainage network and provide a long-term water management system within the 590 km^2 Washow Bay-Icelandic River area for stable viable agricultural production.

Manitoba Agriculture, Manitoba Natural Resources and the R.M. of Bifrost agreed to construct Phase One of the Washow Bay Drainage Project in 1988. Installation of culverts at two highway locations were completed in the fall of 1990 at a cost of $74,000. This work completed Phase One at a total project cost of $1,138,000 (Province: $1,038,000; R.M. of Bifrost: $100,000). The Province reconstructed approximately 30 km of major drains and the R.M. of Bifrost approximately 5.0 km of lateral drains in Phase One. The on-farm drainage component of Phase One ($85,000) is being implemented through the existing Washow-Icelandic Soil and Water Management Committee.

An Agreement respecting Phase Two of the Washow Bay Drainage Project between the Province (Departments of Agriculture and Natural Resources) and the R.M. of Bifrost was signed in September 1989. The agreement provides for improving the existing drainage within the Okno Drain area through a system of drains, dykes and portable pumps at an estimated cost of $2,611,500 (Province: $2,383,000; R.M. of Bifrost: $228,500). The Province is responsible for providing, at its own cost, the engineering services required for the survey and design of the project. Construction of Phase Two is anticipated to be completed over a seven year period. Acquisition of right-of-way for approximately 5.5 km of the 'Washow Bay Drain' (Phase Two) was secured by the Province in

1990. The on-farm drainage component of Phase Two ($228,500) will be implemented through the existing Washow-Icelandic Soil and Water Management Committee.

Jackson Lake Expansion

Canada and Manitoba agreed to expand the capacity of the Jackson Lake by approximately 90 percent to 3,690 dam^3. Construction of the project was completed in the fall of 1990. This additional reservoir capacity will provide an adequate and reliable water supply during extended dry periods for the villages of Austin and MacGregor, as well as for local landowners downstream and adjacent to Squirrel Creek. The project will also provide increased benefits for waterfowl habitat and wildlife production. There will be increased benefits for development of a sport fishery which will result in a more attractive area for recreational use.

The project involved raising the existing earth fill dam by 1.8 m, relocation of a hydro transmission tower and construction of a dyke along the north shore of the reservoir. The total cost of the project was $530,000 (Canada: $400,000; Province: $118,000; Manitoba Hydro: $12,000). The project was constructed by Canada under the Canada-Manitoba Agri-Food Agreement. Engineering design, surveys and construction management were provided by the PFRA. The Province has resumed the operation of the project and the structure is functioning well.

Stephenfield Lake Expansion Project

Under the Canada-Manitoba Agri-Food Agreement, Canada and Manitoba agreed to expand the capacity of Stephenfield Lake by approximately 20 percent to 5,380 dam^3. Construction of the project was completed in the fall of 1990. The expanded reservoir capacity will provide additional water for downstream users along the Boyne River and greater assurance of water flow in order to satisfy their winter water requirements. The increased reservoir depth will also improve the existing fishery and will have added benefits for waterfowl habitat and wildlife production. The new full supply level will also result in enhancement of the reservoir as a more attractive place for recreational use.

The project involved raising the existing concrete spillway of the Stephenfield Dam by approximately 0.6 m. The total cost of the project is estimated at $135,000 (Canada $88,000; Province $47,000). The PFRA provided the engineering design, surveys and construction management. The province has resumed ownership and operation of the project.

Pasquia Polder III Project

The purpose of this project is to improve the land base of the Pasquia area by drainage reclamation with the ultimate objective being to develop approximately 7200 ha of land for stable, viable agricultural crop production.

The project, being developed by Manitoba Natural Resources with no federal involvement, will cost approximately $3.55 million, and will involve the construction of two large pumping stations and approximately 58 km of drains. During 1990 the Province reconstructed approximately 4.0 km of channel on the 'Pasquia Lake Drain' at a cost of $251,000. Approximately 13.6 kms of the Pasquia Lake Drain has been reconstructed to date.

The Pasquia Polder III Project will ultimately result in a substantial economic benefit to the local agricultural community. The improved drainage will provide more viable farm units, thereby expanding the farm acreage which will strengthen the local farm service businesses and lead to improved animal health services.

Pelican Lake Enhancement Project

The purpose of the project is to provide improved water levels and water quality in Pelican Lake. In 1989, the Province conducted an environmental assessment of the project, including the impact on the hydrology of the Pembina River basin. Under the Manitoba Environment Act, Manitoba Natural Resources applied for a licence for construction on August 10, 1989. The Clean Environment Commission conducted public hearings regarding the project on March 8, 1990. A Manitoba Environmental Licence was issued on November 1, 1990. The project has received Federal environmental approval and federal funding subject to specified mitigation measures.

The Pelican Lake project is being funded on a 50-50 cost-sharing basis under the Canada-Manitoba Agri-Food Agreement. The project involves the rehabilitation and improvement of an abandoned diversion channel to allow controlled diversions of Pembina River flows into Pelican Lake when lake levels are low. Works include a weir on the Pembina River, inlet and outlet channel improvements and two gated control structures. The cost is estimated at $600,000 and the federal government will contribute up to a maximum of $300,000 under the terms of the

agreement. The Province has secured land from two landowners: one by mutual agreement and one by expropriation. Construction materials were purchased and minor brush clearing was done in the fall of 1990 at a cost of $205,000. Construction of the project is expected to begin in the summer of 1991 with completion by the fall of 1991. Some work may be carried over to 1992.

The project will result in the regulation of lake levels at an acceptable range. The stabilized levels will enhance the recreational opportunities for boating, swimming and fishing, thereby promoting the local tourism industry.

Carman Flood Protection Diversion

The purpose of this project is to provide flood protection for the Town of Carman, an agricultural service centre, up to the 1% flood level. The Carman Flood Protection Diversion is being constructed under the *Canada-Manitoba Agri-Food Agreement. A Memorandum of Understanding* was signed on September 30th, 1988, whereby the cost sharing would be $4.0 million plus engineering and project management costs of $0.9 million from the federal government, $1.75 million from the Province, and $0.35 million from the Town of Carman.

The project got underway during the 1989-90 fiscal year, shortly after having received an environmental licence. The work from the contracts awarded late in 1989 was continued into the 1990-91 fiscal year. The right-of-way for the upper half of the division from PR No. 245 to PTH No. 13 was secured and the earthwork contract for this reach was also completed. The diversion control structure contract was awarded in June, 1990 for $436,680. The bridge over the diversion on PTH No. 13 was awarded in August for $217,920; the CNR bridge contract was awarded in August for $216,000, the West Municipal Bridge contract was awarded in September for $112,000 and the East Municipal Bridge contract was also awarded for $112,000. A number of material supply contracts were also awarded. The total construction expenditure for the 1990-91 year was $3,004,210 of which the Province's share was $901,260. By the end of the 1990-91 fiscal year most of the works were completed with the exception of C.P.R. bridge and general clean up of some of the contracts. Because of the remaining works still required the Canada-Manitoba Subsidiary Agreement on Agri-Food Development was amended to extend the termination date from December 31, 1990 to December 31, 1991.

Gimli Flood Protection Diversion

The project when completed will protect the town to the 1% level from high water levels caused by natural drainage and flood flows. Activity involves the construction of a diversion and related crossings.

1989-90 was the first year of a three year project estimated to cost approximately $1.4 million. Due to problems in acquiring right-of-way, excavation work scheduled for 1989-90 had to be postponed until 1990-91. During the 1990 construction season the reach of the diversion from Lake Winnipeg to PTH No. 8 Highway was completed. The PTH No. 9 crossing was also completed. Expenditures for 1990-91 were $379,910. The work remaining in this reach is the replacement of the CPR railway crossing.

Canada-Manitoba Flood Protection Projects Agreement

On March 10th, 1983, the governments of Canada and Manitoba signed an *Agreement Respecting the Upgrading of Ring Dykes in Certain Communities in the Red River Valley*. The agreement provided for the upgrading of the existing dyking systems of eight communities in the Red River valley to provide flood protection to the 1% flood level. The communities were Emerson, Letellier, Dominion City, St. Jean Baptiste, Morris, Rosenort, Brunkild and St. Adolphe. The agreement provided for up to $4.5 million, with the federal government contributing 45% and the provincial government 55%. Manitoba signed agreements with the local governments to contribute up to 5% of the capital costs and 25% of the annual maintenance costs. The local governments agreed to be responsible for all grass mowing in lieu of 25% of the annual maintenance cost, and will also contribute a fixed annual payment to the Province to provide the municipality's share of the costs of replacement of flood pumps in the future.

The agreement was amended on May 22nd, 1985 to provide for additional funding of $1.6 million to include flood protection works for Ste. Rose du Lac and the Souris Water Treatment Plant. The title of the agreement was changed to reflect the inclusion of the communities of Ste. Rose du Lac and Souris which are not in the Red River valley. The amended Canada-Manitoba *Agreement Respecting Flood Protection Projects in Manitoba* terminated on March 31st, 1989. An amending agreement was signed on January 29th, 1990 providing a two-year extension to March 31st, 1991 and additional funding of $800,000.

Prior to 1990-91, dyke upgrading was completed for Letellier, St. Jean Baptiste, Morris, Rosenort and Brunkild. The dyke around the water treatment plant at Souris was also completed. Progress during 1990-91 for the other communities follow.

Emerson

Gravelling of some dykes and general clean up of the construction areas was undertaken. Expenditures in 1990-91 were $35,185.

St. Adolphe

The north dyke closure was initiated after lengthy negotiations with the local government and landowners were completed and clean up of the construction area was undertaken. Expenditures in 1990-91 were $64,175.

Ste. Rose du Lac

Clean up of the construction area and reseeding of some of the dykes were undertaken. Payments for some outstanding right-of-way was made. Expenditures for 1990-91 were $33,160.

The agreement terminated on March 31st, 1991 with the provision for the cost-sharing of costs incurred for a period of six months after the termination of the agreement as long as the works or activities were undertaken prior to the termination date. Further adjustments are expected.

Dominion City

The communication tower was erected and an approach pad to an existing pumping station for an emergency power source was constructed. Expenditures for 1990/91 were $1,960.

Dauphin Lake Basin Enhancement Program

The Dauphin Lake basin is suffering from ever increasing deterioration of the natural resources and land base that has been taking place throughout the basin. Erosion and siltation, water quality, fisheries and lake regulation are key issues being addressed by the Dauphin Lake Basin Advisory Board. The Board finalized a seven-point initiative in May 1990 for the Minister's advice and guidance. The Minister accepted the 1990 initiative package for action under the following items:

A) Water Quality Monitoring
B) Education and Public Awareness
C) Lake Level
D) Diversion of Edwards Creek Drain
E) Farming for Tomorrow Program
F) Fisheries Enhancement

The Board drew up and approved a constitution and by-laws to compliment the terms of reference and method of operation.

The Technical Advisory Group prepared a draft management plan for the Dauphin Lake Basin. This draft plan will be given to the Board in April, 1991 for their review and approval prior to public meetings on the management plan.

The Department of Natural Resources received from the Department of Highways and Transportation an obsolete 1966 twenty foot ATCO trailer. The Board began to renovate the trailer for an awareness centre by removing the interior during the winter months. It is the intent of the Board to rebuild and refinish the trailer with audio/visual displays and have it operational by the end of June 1991. Funding to initiate this awareness centre was received from the Special Conservation Fund generated from Manitoba Lotteries revenue.

The Board sent out a questionnaire to the basin residents in the fall of 1990, seeking their reaction to lake levels during the summer of 1990. With this feed back the Board will have a better insight into how the trial increase of six inches to the upper range of regulation will impact the land use adjacent to the lake and users of the lake. The questionnaire will be summarized for a Board meeting in 1991.

Table WA.5
Expenditure by Sub-appropriation 12-4(c) (Water Management)

4(c) Water Management	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	1,509,500	33.13	1,432,700	76,800	
Other Expenditures	4,084,300		4,148,300		
- Grants/Transfer Payments	29,000		29,000		
Total Other Expenditures	4,113,300		4,177,300	(64,000)	

Hydrotechnical Services

The objective of Hydrotechnical Services is to provide continuing inventory of ground and surface waters, flood and runoff forecasting, hydrological standards and related studies, groundwater studies and computer programming.

Activities include streamflow, flood and groundwater level forecasting, investigations for groundwater management, and conservation and operation of surface and groundwater data networks. In addition, hydrological analyses are conducted for various internal and external studies and for the setting of hydrological standards. Recommendations pertaining to water use licensing are also made.

Hydrological Monitoring and Report

Recorded streamflows and water levels in Manitoba's rivers and lakes form the basic data on which all water resources management decisions and studies are based. The information is used for water supply determination, water control structure operation, flood control and many water related studies. Streamflow and water level data for the province is gathered, stored, analysed and disseminated.

Water level data was gathered at 122 hydrometric stations throughout Manitoba. The data for 51 of the hydrometric stations was contributed to the federal Water Resources Branch for publication in their *1990 Annual Surface Water Report*. A further 312 flow, level and sediment stations were operated by the federal Water Resources Branch under the terms of the *Canada-Manitoba Agreement for Water Quality Surveys*. All recorded data was entered in the branch's computer for use in hydrological studies.

Data on water levels and streamflows for 29 lakes, 5 reservoirs and 29 river stations was compiled and distributed weekly to about one hundred users. This included the operational status of 8 controlled lakes and reservoirs.

Isohyetal maps of storm precipitation and monthly precipitation were prepared and distributed after each storm and shortly after the end of each month.

Reports on the drought and its impacts on surface and groundwater supplies in Manitoba were prepared for the Provincial Drought Monitoring Committee, the Federal-Provincial Drought Monitor Committee, and for the Prairie Provinces Water Supply Conditions Report assembled by PFRA. These reports included information on the likelihood of water shortages arising in the future under specified weather scenarios.

Several news releases were prepared to describe the effect of drought on water supplies and on actions being taken to mitigate water shortages. News releases were also prepared describing the anticipated runoff resulting from heavy rains in the Whiteshell region and in the Saskatchewan River System. These were mailed to interested parties and distributed to the public and the media.

Hydrological and Climatological Data and Studies

Hydrological and climatological data and studies were provided at the request of clients. Hydrological data included historical water levels and streamflows as well as design discharges and levels. Climatological data included precipitation amounts and rates, wind speeds and evaporation, while studies involved determination of the effects of these parameters on runoff, streamflow and lake levels.

Hydrological studies included the determination of historic inflows to Deloraine Reservoir and Jackson

Lake, Assessment of the impacts of the proposed Pelican Lake Enhancement Project on flows and levels along the Pembina River System; and analysis of minimum flows on the Red and Assiniboine Rivers. The hydraulic impacts of a proposed weir on the Red River at Morris were determined, and a hydrological simulation model was developed for the Big Grass Marsh and lower Whitemud River to evaluate the impacts of various marsh management schemes.

River and Water Supply Forecasting

The Branch's River Forecast Centre prepared forecasts of river flows and stages for the Red, Assiniboine, Souris and Saskatchewan Rivers during 1990. Forecasts of minimum flows and water levels prevented unnecessary costs for emergency upgrading to secure town water supplies. The centre also prepared forecasts of lake and reservoir levels, particularly where water supplies were seriously threatened by drought. This facilitated the operation of control works and the formulation of recommendations with respect to water rationing and the development of alternative water sources.

Flood forecasting during the spring of 1990 began with a general outlook on spring runoff and flooding prospects for all of Manitoba, issued in early March. A second outlook was prepared and distributed in late March. Because of the light spring runoff, no operational flood forecasts were required. However daily information sheets for the Red and Assiniboine Rivers in the Winnipeg area were prepared and provided to the City of Winnipeg during April 1990.

A flood advisory was issued on June 6, 1990 forecasting the expected impact of heavy rainfalls in Southeastern Manitoba and at The Pas.

During February and March of 1991, spring runoff outlook maps were prepared for all of Manitoba. More specific forecasts of probable peak levels were prepared for 23 locations on the Red, Assiniboine and Souris Rivers, and for many smaller streams, lakes and reservoirs in the Province. These forecasts were distributed to the media as well as to all municipalities, cities, towns, villages, local government districts and Indian Bands in Manitoba, and to flood fighters and government officials.

River Forecast Development

Updating of improved water supply and river flow forecasting procedures continued. Additional computer software was developed to improve data management. Research into the use of satellite microwave measurements to develop snow cover and snow water content maps continued. A study completed under contract by the Soil Sciences Department of the University of Manitoba produced estimates of fall soil moisture under various crops for the last four decades. This historic record of soil moistures will be used to further refine spring runoff forecasting procedures.

Aquifer Administration

Groundwater management concerns resulted in participation in a newly formed technical advisory committee to review servicing (especially water and sewer implications of residential development in rural areas). Liaison with licensed water well contractors was maintained through participation at quarterly meetings of the Manitoba Water Well Association. A number of coordination meetings were attended with program managers from Manitoba Environment to ensure compatibility and integration of programs dealing with water quantity and quality.

Aquifer Data

Aquifer data collection and groundwater information services for the Province continued in 1990-1991. Because of the drought extra effort was required to provide up-to-date water level information.

Twenty six hundred and fifty water well drillers' reports were received from licensed water well contractors operating in Manitoba. The groundwater monitoring network was expanded by installing four new groundwater monitoring stations. Four hundred and eighty-two groundwater monitoring stations were in operation throughout the province. A variety of parameters such as weather levels, chemistry and groundwater temperatures are monitored at these stations. All groundwater data were incorporated into a permanent computerized storage and retrieval system for the province.

One hundred and forty-two groundwater availability and 94 groundwater pollution hazard appraisals were prepared in response to specific requests. Numerous telephone and written inquiries about groundwater conditions in various areas were responded to with specific resource information and advice. Because of drought, monthly groundwater level reports were prepared during the summer and autumn. In response to requests from the Clean Environment Commission to provide groundwater information and advice related to groundwater resource protection and development, presentations were made and evidence given at several meetings.

Aquifer Definition

The program of updating the existing 1:250,000 Groundwater Availability Map Sheet studies was continued. The updated version of the Neepawa 62-J study was published and the draft revisions to the Swan Lake 63-C maps were completed in preparation for final drafting and production of negatives during the 1991/92 fiscal year.

Studies of the hydrogeology and hydrogeochemistry of tills were continued at the study sites established in 1989/90 near Rossburn and Teulon. These sites were chosen so that one site was located in each of the two major glacial till environments in southern Manitoba, (i.e., tills developed over Cretaceous shales and tills developed over Palaeozoic carbonates). Eight new piezometers in two nests were established at the Teulon site during 1990/91. Water levels were measured monthly in piezometers at both study sites. Water samples were collected from 43 piezometers at the Rossburn site and seven piezometers at the Teulon site and analyzed for an extensive suite of inorganic and isotopic parameters. Slug tests were also carried out on seven piezometers at the Teulon site. The results to date indicate significant differences in geochemical development and groundwater transport at the two sites. This has broad implications in terms of contaminant transport in glacial tills from a variety of potential sources such as waste disposal sites, lagoons, agricultural activities, etc.

The hydrogeology of the Cooks Creek Conservation District was presented through preparation of a series of maps showing the physical hydrogeology and hydrogeochemistry of the District. As a follow-up to this mapping project an investigation of the groundwater quality in the Village of Oakbank was conducted in co-operation with the District. A report of the results of this investigation was prepared which included a number of recommendations for groundwater quality protection within the Village. Cooperative work was carried out with geologists from Manitoba Energy and Mines to examine the Quaternary geology at the Teulon and Rossburn till study sites and to examine the hydrogeology of the carbonate rocks in the Grand Rapids area.

Aquifer Capacity

During the fiscal year, monitoring of groundwater levels, usage and water quality was continued in 12 major groundwater development zones in Manitoba. The major activity undertaken was the completion of the field investigations and the technical evaluation of the Winkler Aquifer. A paper on the hydrogeology of this aquifer was prepared and presented to The International Coalition Conference held in Winnipeg during November 1990 and to the Winkler Town Council and other interested groups. The evaluation of groundwater development in the Assiniboine Delta Aquifer was continued through the year. Six technical presentations were made on topics related to this aquifer.

Aquifer Modification

An extended water quality sampling program was carried out on Shannon Creek during the 1990 spring runoff in order to obtain background information on surface water quality parameters, including pesticides. This involved collecting daily water samples to be analyzed for numerous chemical parameters and taking daily stream discharge measurements.

Test drilling and observation well installation was carried out in the Almasippi sand area, south of the Assiniboine River. A network of four observation wells was installed in this surficial sand area to monitor regional water levels.

Periodic work was carried out on aquifer modification projects at Ross Creek and the South Lateral Drain in which the Branch has a long standing commitment.

During 1990/91 numerous meetings of the Assiniboine Delta Aquifer Management Advisory Board were held. Components of a draft plan for management of the water resources of the Assiniboine Delta Aquifer were formulated.

Table WA.6
Expenditure by Sub-appropriation 12-4(d) (Hydrotechnical Services)

4(d) Hydrotechnical Services	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	1,126,500	27.00	1,181,700	(55,200)	
Total Other Expenditures	835,600		836,600	(1,000)	

Regional Water Management

The objectives of the Regional Water Management Section are to manage branch programs on provincial water control works, to represent the branch and liaise regionally, to provide services and guidance to local authorities, to administer *The Water Rights Act* as it pertains to drainage works, and to participate in branch management and initiatives. The responsibility and authority for regional water management is vested in five regional water managers.

The management of operational, maintenance and capital programs is accomplished by identifying needs, developing projects, and overseeing program delivery in conjunction with the Engineering and Construction Branch which provides project development services and budget co-ordination.

The regional water managers maintain an ongoing relationship with municipalities, conservation districts, regional representatives of other branches and departments, and others, and also respond to representations from the public.

Requests for services from municipalities and conservation districts are first investigated, and then programs are proposed and developed with the assistance of surveys and technical input from the Engineering and Construction Branch.

The regions of the Water Resources Branch are the Southeastern, Southwestern, Western, Northwestern, Interlake, Eastern and Northeastern. For administrative purposes, the Western and Northwestern Regions are combined, as are the Eastern and Northeastern Regions.

Maintenance Program

The purpose of the program is to operate and maintain provincial water control works under three categories: land drainage, flood damage reduction, and water supply and conservation.

Land Drainage involves maintaining the integrity and existing capacity of 4,320 km of provincial waterway channels primarily through silt removal, side slope stabilisation, erosion control, mowing and spraying vegetation, and crossing repairs.

Flood damage reduction pertains primarily to flood protection dykes and floodways, such as the town dykes in the Red River valley, the Ste. Rose dykes, the Saskatchewan River dyking system, the Lake Winnipeg dykes, the Red River Floodway, the Portage Diversion, and the Shellmouth Dam.

Water supply and conservation involves maintaining 91 provincially owned dams.

Total program expenditure for the fiscal year was $3,786,891.

Provincial Waterway Reconstruction

The purpose of this program is reconstruct existing provincial waterways so that the damage to crops caused by excess summer rainfall will be reduced. Provincial waterways serve as the outlets for the municipal agricultural drainage network. In 1990/91, a total of eight projects were undertaken under this program. Of these, two projects were in the Interlake Region, namely Swan Creek and 'Dog Hung Creek'; the 'Dubas Drain' in the Eastern/Northeastern Region; three projects in the Southeastern Region, those being 'No. 2 Drain', South Lateral Drain and 'Aux Marais Drain'; 'Maple Lake Drain' in the Southwestern Region, and the Community Pasture Drain in the Western/Northwestern Region.

Total program expenditure for 1990/91 was $1,307,006.

Note: 'name' denotes unofficial name.

Bridge Replacement Program

The purpose of this program is to replace or effect major repairs to badly deteriorated bridges over provincial waterways. At present, there are 990 bridges over designated provincial waterways. Of these, 14 bridges were replaced in 1990/91. The five bridges in the Southeastern Region were on the Plum River, Tourond Creek, 'Scott Drain', 'St. Joseph Drain' and 'MacDonald Drain'. The one bridge in the Interlake Region was on the Icelandic River. The single bridge in the Southwestern Region was on 'West Badger Creek'. There were four bridges in the Western/Northwestern Region, namely on the Wilson River, Jarosz Drain (two bridges) and on Fishtown Creek. The three bridges in the Eastern/Northeastern Region were on the 'Oneschuk Drain', 'WDrain' and 'Main Drain No. 1'.

Total program expenditures for 1990/91 were $675,428.

Note: 'name' denotes unofficial name.

Table WA.7
Expenditure by Sub-appropriation 12-4(e) (Regional Management)

4(e) Regional Management	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	350,300	6.00	350,100	200	
Total Other Expenditures	43,700		38,500	5,200	

Table WA.8
Summary of Water Control Works, 1990/91 (In dollars)

Program	Region					Total
	Interlake	East/N.E.	Southeast	Southwest	West/N.W.	
Maintenance of						
Water Supply & Conservation	3,100.00	2,615.30	89,203.41	1,426.37	161,700.88	258,045.96
Flood Damage Reduction	224,755.79	236,889.60	148,272.30		65,907.31	675,825.00
Land Drainage	915,933.07	222,554.50	1,059,459.55	5,080.76	649,992.00	2,853,019.88
Waterway Reconstruction	260,860.57	212,673.80	640,505.78	12,871.95	180,094.15	1,307,006.25
Bridge Replacement	101,901.94	71,971.46	326,287.36	2,023.50	229,771.60	731,955.86
Washow Bay Agricultural Enhancement Project	74,400.35					74,400.35
Pasquia Polder III					251,613.25	251,613.25
Flood Protection Projects			101,316.42		33,161.57	134,477.99
Carman Diversion Project			939,855.51			939,855.51
R.M. and Town of Gimli Flood Protection Project	379,910.62					379,910.62
Pelican Lake Enhancement Project				205,655.37		205,655.37
Droughtproofing Projects			6,718.28	109,600.91		116,319.19
Regional Totals	1,960,862.34	746,704.66	3,311,618.61	336,658.86	1,572,240.76	7,928,085.23

Table WA.9

Expenditure by Sub-appropriation 12-4(g) (Assiniboine Delta Aquifer Management)

4(g) Assiniboine Delta Aquifer Management	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Other Expenditures					
- Grants/Transfer payments	25,000			25,000	1
Recoveries - Environmental Innovations Fund	(25,000)			(25,000)	1

Explanation Number

1. The Department provided a grant to the Assiniboine Delta Management Board. The grant was funded from the Environmental Innovations Fund.

Section 13
Wildlife Branch

Administration

The administration section provided direction in the development and implementation of policies related to the management, development and regulation of the wildlife resource and the provision of general administrative support to wildlife programs. This included personnel recruitment, management and direction, field staff consultation, program planning, policy and procedure formulation and implementation, legislation development, business management, budget coordination, budget allocation and control, and liaison with other agencies.

Administration section staff effectively maintained a financial system, encompassing accounts receivable and payable, invoice processing, quarterly cash-flows, monthly financial reports and annual budget estimates preparation. Comprehensive payroll and personnel services were provided for the Branch. These included staffing, recruitment and selection, employee record maintenance, staff development and training, performance reviews and volunteer coordination. Numerous administrative support functions were also handled, such as the paper recycling program, vehicle acquisition and vehicle coordination.

An organizational review in 1990-91 resulted in some realignment of staff duties and responsibilities. As part of a government-wide decentralization initiative, two positions were moved to Swan River and one to Beausejour.

The Branch initiated a Wildlife Management Strategy for the 1990's, ensuring ongoing participation in the development and revision of a Federal Wild Animal and Plant Protection Act, along with the negotiating and signing of the management agreement with Ducks Unlimited for the conservation centre at Oak Hammock Marsh. In addition the five year forest-wildlife integrated management initiative, the planning process for the proposed Churchill National Park, management and implementation of the North American Waterfowl Management Plan through the restructured Habitat Heritage Corporation were ongoing during the year. Other priorities addressed included ensuring action was taken to sustain wildlife and facilitate recovery of endangered species and continuing to promote co-management of wildlife resources with aboriginal peoples.

Branch staff were active in International Association of Fish and Wildlife Agencies (IAFWA) whereby an approach for developing a strengthened relationship between IAFWA and Canadian wildlife agencies was established. Other activities included participation in inaugural meetings of the restructured Manitoba Habitat Heritage Board and Executive Committee, a working session in Saskatoon of prairie wildlife directors and CWS officials concerning 1990 waterfowl season frameworks, the 1990 Wildlife Ministers' Council in Campbell River, and hosting the Federal/Provincial Wildlife Directors' Conference in Winnipeg in June 1990.

Table WI.1
Expenditure by Sub-appropriation 12-9(a) (Administration)

9(a) Administration	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	245,400	7.00	258,000	(12,600)	
Total Other Expenditures	92,100		81,300	10,800	

Management

Recreational Hunting

In 1990-91 recreational hunting continued to be a popular activity. A total of 59,817 big game hunters harvested approximately 26,000 deer, 1,200 moose, 600 elk, 600 black bears, 90 caribou and 10 timber wolves. In addition 28,527 residents and 4,473 non-residents took to the fields and marshes to hunt game birds. Non-resident bear, deer, moose and game bird hunters generated an estimated $3.0 million in related economic activity in the province.

For public information purposes some 150,000 hunting brochures, 5,000 Oak Hammock Marsh and Grants Lake Managed Hunting Area Brochures, 7,000 designated route maps and 3,000 signs were printed and distributed.

Moose, Elk and Caribou Management

Initiatives in co-operative moose management continued in Manitoba. Efforts in GHA 8 were successful enough to warrant a limited hunting season in 1990. An allocation of animals was made for licensed hunters and aboriginal peoples by the management board.

In GHA 20 moose numbers recovered less vigorously than in GHA 8, but the Department accepted a request from the Waterhen Indian band to have a controlled hunt by residents and non-residents with licenses for the latter being made available to the band. The revitalization of moose in this area continues to be a cooperative management challenge for the branch and aboriginal people.

The Elk Management Board established in the Duck Mountain area continued to function. This Board has taken an active role in bringing forth areas of concern by local people.

The initiative begun in 1989-90 to determine the extent of brainworm in the province's white-tailed deer population continued with emphasis on more northerly hunting areas. Deer transmit this disease which is fatal to moose, though they seem little affected by it themselves. Hunters cooperated with the branch and a total of about 1000 deer were examined. Samples were analyzed by the University of Alberta and the results will show the distribution and prevalence of this parasite in the province.

Joint planning continued with Ontario for the management of the Pen Island caribou herd. This herd of approximately 5,000 animals inhabits the Hudson Bay coastline as far east as Fort Severn, moving toward the Shamattawa area during the winter. Management of this herd involves not only the two provinces, but the aboriginal communities as well. Fort Severn and Shamattawa residents in particular have traditionally harvested animals from this population on an annual basis. The communities have worked diligently with biologists in each province to develop a management agreement which will be ready for ministerial approval in mid 1991.

The fifth year of a five-year study into the relationship between timber harvesting and woodland caribou ecology was successfully completed. Participants in the study were Wildlife, Parks and Forestry Branches, and Abitibi-Price Inc. Analysis and publication of the results of this study will be undertaken in the next fiscal year. All data are being entered into the Wildlife Branch's Geographic Information System for reporting purposes and for ongoing management and planning.

Table WI.2
Expenditure by Sub-appropriation 12-9(b) (Operational Management)

9(b) Operational Management	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	484,800	10.15	479,100	5,700	
Other Expenditures					
- Grants/Transfer Payments	154,500		103,900		
Total Other Expenditures	1,000		1,000		
	155,500		104,900	50,600	1

Explanation Number:

1. *Variance due to the unanticipated costs associated with repairs to computer equipment and the printing of a brochure on endangered species.*

Table WI.3
Hunting Licences Sold, 1990-1991

Type of Licence	Fee $	Number Sold	Revenue $
Game Bird			
Resident of Manitoba	9.00	28,602	243,681.50
Non-resident (Canadian)	50.00	815	40,390.00
Non-resident (Non-Canadian)	100.00	4,473	445,259.50
Wild Turkey			
Resident of Manitoba	12.00	681	8,172.00
Moose			
Resident of Manitoba	33.00	6,381	208,328.00
Non-resident (Canadian)	250.00	10	2,500.00
Non-resident (Non-Canadian)	300.00	126	37,800.00
Elk			
Resident of Manitoba	33.00	2,650	87,450.00
Woodland Caribou			
Resident of Manitoba	33.00	232	7,654.00
Black Bear			
Resident of Manitoba	15.00	2,347	34,234.00
Non-resident (Canadian)	60.00	28	1,677.50
Non-resident (Non-Canadian)	115.00	957	109,580.00
Deer			
Resident of Manitoba	20.00	46,379	905,507.50
Non-resident (Canadian)	90.00	336	30,240.00
Non-resident (Non-Canadian)	115.00	360	41,286.00
Total Licence Sales			
Resident of Manitoba		87,272	1,495,027.00
Non-resident (Canadian)		1,189	74,807.50
Non-resident (Non-Canadian)		5,916	633,925.50
Total		94,377	2,203,760.00
Replacement	Variable	200	1,008.00
Wildlife Certificates	8.00	61,717	465,219.00
Grand Totals		156,294	2,669,987.00

Table WI.4
Hunting Licences Sales and Revenue

	GAME BIRD		BIG GAME		WILDLIFE CERTIFICATES		TOTALS	
YEAR	NO. SOLD	REVENUE $	NO. SOLD	REVENUE $	NO. SOLD	REVENUE $	NO. SOLD	REVENUE $
1981/82	56,203	474,355.50	66,570	713,353.25	83,998	169,719.00	206,771	1,357,427.75
1982/83	51,618	621,183.00	66,711	1,081,211.50	81,225	207,131.50	199,554	1,909,526.00
1983/84	44,731	697,294.50	64,062	1,134,739.50	75,119	266,116.50	183,912	2,098,150.50
1984/85	38,826	565,929.00	59,406	1,158,430.00	68,233	309,957.00	166,465	2,034,316.00
1985/86	35,342	588,487.00	52,541	1,066,958.00	62,607	409,699.00	150,490	2,065,144.00
1986/87	39,141	591,140.50	53,537	1,101,829.00	64,615	422,833.00	157,293	2,215,802.50
1987/88	39,381	715,171.50	58,583	1,201,819.50	66,782	503,692.50	164,746	2,420,683.50
1988/89	37,060	523,428.50	58,795	1,222,661.50	63,995	482,612.50	159,850	2,328,702.50
1989/90	34,992	739,094.50	57,634	1,346,865.50	61,724	454,263.50	154,350	2,551,223.50
1990/91	34,571	737,503.00	60,006	1,467,265.00	61,717	465,219.00	156,294	2,669,987.00

Black Bear Management

The major strategy in bear management continues to be maintaining bear populations through harvest controls. Black bears have a low reproductive rate and excessive harvest can seriously affect population levels. Resident hunter demand has decreased over the past seven years while interest by non-residents increased. Non-resident harvest is controlled through a quota system which restricts the number of non-resident hunters. A quota system for trappers regulates trapper harvest where necessary. The extent of the present harvest in the province is believed to be sustainable, except in the Duck Mountain area. In this area, after consultation with outfitters and trappers, harvest quotas were reduced by 26 percent in 1990.

Approximately 2400 Manitoba residents hunted black bear in 1990. While participation by residents has decreased from a high of 4061 in 1983-84, interest by non-resident hunters increased significantly through the 1980's. There were fewer than 200 non-resident hunters in 1980, but almost 1000 in 1990. The growth in non-resident hunting has now stabilized because of the quota system, increasing competition from other provinces and the effects of the recession.

Wildfire in GHA's 14 (Swan Lake/Pelican Lake area) and 21 (Interlake) adversely affected bear populations. Hunting was curtailed in the burned areas in 1990 and the closure will remain in effect until the population recovers. A technique using scent stations was used in 1990 to monitor bear activity in the burned areas.

The Branch placed more emphasis on efforts to collect biological samples from hunters in 1990. Female reproductive tracts and premolar teeth were requested. Analysis of reproductive tracts is useful in determining litter size and the age when female bears begin to reproduce. Premolar teeth indicate the age of the animal. This information will be useful in developing harvest strategies designed to assure a healthy population structure.

Table WI.5
Wildlife Licence Revenues, 1990-1991

Type of Licence	Revenue $
Hunting Licences	
Wildlife Certificates	465,219.00
Game Bird Licences	729,331.00
Wild Turkey Licences	8,172.00
Black Bear Licences	145,491.50
Replacement Licences	1,008.00
Caribou Licences	7,654.00
Deer Licences	977,033.50
Elk Licences	87,450.00
Moose Licences	248,628.00
Total - Hunting	**$2,669,987.00**
Commercial Licences	
Trapper Licences	39,424.50
Fur Dealer Licences	2,275.00
Tanner Licences	90.00
Taxidermist Licences	1,830.00
Shooting Preserve Licences	770.00
Dog Trainer Licences	690.00
Game Bird Farm Licences	2,080.00
Amphibian/Reptile Licences	696.00
Total - Commercial	**$47,855.50**
Total Revenue	**$2,717,842.50**

Wildlife Damage Control

The Department continued to prevent black bear damage to beehives by removing problem bears from the vicinity of bee yards. In addition, 40 grants of $100.00 each were made available to beekeepers who installed bear-proof electric fences around bee yards.

The Big Game Crop Damage Compensation program provided financial assistance to farm producers and beekeepers suffering losses caused by big game animals. Compensation payments for deer and elk damage were $91,210.00 while payments for black bear damage compensation totalled $15,680.11.

Waterfowl

The fall of 1989 and the spring of 1990 saw normal or above normal precipitation throughout most of southern Manitoba, enhancing habitat conditions for breeding waterfowl. Almost all species of ducks increased in number from the record low levels of 1989. Numbers of ducks in northern areas remained relatively unchanged. Goose populations throughout Manitoba enjoyed average to above average production and numbers flying south were expected to be high.

Despite some of the best waterfowl hunting opportunity in North America, the number of resident waterfowl hunters continued to decline in 1990. This downward trend, which began in 1978, has seen resident waterfowl hunter numbers drop from near 50,000 to less than 25,000. Manitoba's waterfowl regulations are designed to protect species whose populations are in trouble. The 1990 estimated duck harvest in Manitoba decreased to 112,000 ducks, the lowest on record. Goose populations continue to provide an alternative to hunters and the harvest of geese has remained relatively stable near 125,000.

Upland Game Birds

Spring population surveys indicated grouse populations were quite high in many areas of southern Manitoba.

The exception appears to be primarily in the southwest portion of the province which was most profoundly affected by drought conditions over the last ten years. Ruffed and spruce grouse appear plentiful while sharp-tailed grouse are less abundant in the agricultural areas. The wild turkey population, supplemented by annual releases, continues to exist in suitable habitat.

Policy changes related to dog training on native upland game birds were made by the Department to exercise more control over this controversial activity in the future. Consultations were held with various groups in formulating the revised regulations and guidelines.

The Upland Game Bird Management Plan is nearing completion and when finished, will aid in directing the management of upland game birds for many years to come.

Wildlife Education

Manitoba's National Wildlife Week Program focused on the theme "*HABITAT TODAY FOR WILDLIFE TOMORROW*". As part of the youth education program, the province's National Wildlife Week Working Group produced 15,000 wildlife-activity doodle posters with funds donated by Ducks Unlimited Canada, Environment Canada, Manitoba Natural Resources and the City of Winnipeg's Pandas in Person Program. Doodle posters were distributed free of charge to Manitoba schools, public libraries and youth group leaders. Doodle posters were also handed out at National Wildlife Week displays set up and staffed by some 25 different wildlife groups in Winnipeg, Brandon, Dauphin and Portage la Prairie throughout the week. A limited number of posters were sold at cost to wildlife week organizers in Alberta and Ontario. The 500 volunteers who staffed wildlife displays during the week each received a certificate of appreciation from the Minister of Natural Resources. As part of the department's contribution toward the week, teacher education kits were once again purchased from the Canadian Wildlife Federation and distributed free of charge to Manitoba educators. The 1989 kit consisted of a colour poster of a cougar and a 24 page booklet that described in detail how
students can help enhance wildlife habitat in their area. Manitoba's working group also helped promote a new national youth-oriented habitat enhancement program called Habitat 2000. Under the program, students from kindergarten to grade 12 were encouraged to apply for a maximum of $200.00 to assist them in undertaking local habitat enhancement programs. The program is administered by the Canadian Wildlife Federation. All National Wildlife Week educational materials were developed in French and English. The week's activities were promoted through radio and television interviews, news releases, newspaper articles and ads. The working group also sponsored a moose biology workshop and a bird carving seminar to draw attention to the value of wildlife. These two activities alone attracted 300 participants.

The distinctive character of wildlife management areas continued to appeal to growing numbers of Manitobans and tourists. Oak Hammock Marsh remained the province's most heavily used wildlife management area with an annual attendance of an estimated 80,000 people. Seasonal naturalists staffed the Oak Hammock Marsh Information Centre, seven days a week from mid-May to mid-October and provided guided tours of the wetland and grassland area to some 4,500 students and individuals from special interest groups. They also promoted the area by staffing an exhibit at Stonewall Quarry Park during "Quarry Days" and entering a float in the Selkirk Parade and the Icelandic Festival Parade. Seasonal staff organized a photography contest and continued to enlist the services of volunteers in assisting in the delivery of a variety of marsh programs. Branch staff kept area residents apprised of marsh programs and developments through an annual newsletter. Resident interest in area programs remained high, with farmers assisting with the planning of management activities as members of the Oak Hammock Marsh Working Group. Hunter education messages continued to be developed and posted in the Oak Hammock Managed Hunting Area check stations. Special emphasis was placed on informing hunters about the compulsory use of steel shot being introduced within the managed hunting area in the fall of 1991.

Branch staff spent a considerable amount of time working on a proposal in conjunction with Ducks Unlimited Canada to build a conservation centre at Oak Hammock Marsh. The centre would consist of a one-of-a-kind wetland interpretive centre and office quarters for Ducks Unlimited Canada. The interpretive centre would be developed and operated jointly by Manitoba Natural Resources and Ducks Unlimited Canada; the office component of the conservation centre would be developed, operated and funded entirely by Ducks Unlimited Canada. With the issuance of an Environment Act Licence and having cleared all other necessary review processes, the Minister of Natural Resources on March 2, 1991 signed a 50 year agreement with Ducks Unlimited Canada to proceed with the development and operation of the centre for the purpose of fostering public awareness of the values of wetlands and marshalling public support for wetland conservation initiatives.

The Narcisse snake dens continued to attract ever-increasing numbers of visitors. Seasonal naturalists provided guided tours for 2,200 students and interested individuals, while some 7,800 people explored the trail system and dens on their own. The program at Narcisse was once again assisted by Oak Hammock Marsh volunteers who assisted seasonal staff at the den sites in explaining the significance of the snake dens to weekend visitors. Staff embarked on a cooperative initiative with regional tourism and local government officials to develop visitor service facilities and highway directional signs within the area.

Wildlife displays were set up and staffed at 25 events throughout the province. New exhibits were developed on Manitoba's endangered wildlife and the peregrine falcon reintroduction program. Staff also organized a moose biology seminar in conjunction with the Manitoba Big Game Trophy Association and a steel shot clinic. Staff continued to spent considerable time in the field photographing key wildlife species with an emphasis on endangered plants and animals.

Throughout the year staff spoke to numerous wildlife associations, naturalists groups, business organizations, service clubs, students and organized youth groups such as 4-H, Girl Guides and Boy Scouts on various aspects of wildlife conservation. Staff also took an active role in organizing the Prairie Canada Bird Carving Competition, held in conjunction with the Mid-Canada Boat Show.

Project WILD

Some 450 educators from across Manitoba were trained in the use of Project WILD materials in 1990-91. Project WILD is an environmental education program emphasizing wildlife sponsored in Canada by the Canadian Wildlife Federation and implemented under agreements with each province's wildlife agency. Participants are required to attend an in-service training workshop usually conducted jointly by a wildlife specialist and a teacher. Workshops are conducted in English throughout the province and in the French language at St. Boniface College in cooperation with the Bureau de l'Education Francaise under the auspices of the Manitoba Department of Education.

A special training workshop was held at the Gull Harbour Conference Centre to provide additional training for existing workshop leaders, and train additional facilitators. There are now over sixty educators and wildlife specialists across Manitoba capable of delivering Project WILD workshops.

Watchable Wildlife

The joint initiative by the Manitoba Parks Branch, Department of Tourism an Wildlife Branch to further develop wildlife viewing opportunities in the province and related economic benefits continued. The consultant's study was expected early in the next fiscal year. The findings of the study will be useful in guiding the implementation of the Watchable Wildlife Program in future. Other jurisdictions in North America are adopting Watchable Wildlife Programs, with British Columbia and Alberta leading the way in Canada. Wildlife viewing and appreciation strengthens public interest in conservation and provides economic benefits for tour operators and other related businesses. There is excellent potential for the sustainable development of a wildlife viewing industry in Manitoba, building on existing international attractions, such as the polar bears at Churchill, and developing new opportunities to encourage Manitobans to travel within their own province.

Permits

The Wildlife Branch issues a variety of permits under the authority of the Wildlife Act and related regulations. A summary of this activity follows.

Summary of Permits Issued, 1990-91

Permits to Possess Dead Wild Animal

personal use	237
commercial use	7
educational	10
ceremonial	3
	267

Applications for Permits to Possess Dead Wild Animal Denied

migratory bird	22
ineligible species	24
	46

Permits to Possess Live Wild Animal

protected species	1
big game	3
game bird	4
rehabilitation	1
	9

Permits to Possess Live Wild Animals Denied	
game farm	6
Permits to Export Wild Animal	245
Permits to Import Wild Animal	7
Permits to Capture Wild Animal	4
Permits to Kill Wild Animal	4
Permits to Serve Meat of Wild Animal	15
Disabled Hunter Permits	7
Dog Trainer's Licence (non-resident)	5
Permit to Hunt Wild Animal on Sunday	1
Total Permits Issued	**564**
Total Applications Denied	**52**

Habitat

Habitat Development

The Habitat Development budget was largely dedicated to the development of forage plots on forestry landing sites and clear cuts in several areas. In the Northwest Region, these forage plots will provide an additional food source for elk that will be released in the area as part of the Swan River Valley transplants. Additional GIS and computer equipment for joint forestry-wildlife projects were purchased to assist in project delivery.

Wildlife Management Areas

The Lake Francis Wildlife Management Area, encompassing approximately 15,845 acres, was established in May, 1990, to protect a portion of the Lake Manitoba beach ridge, remnant tall grass prairie and an important wetland complex.

Fire management plans for the Westlake and Saskeram Wildlife Management Areas and the lower Saskatchewan River Delta have been developed which will provide direction for fire suppression in these important wildlife areas.

Wildlife Land Planning

Wildlife land planning centred on Wildlife Management Area (WMA) system planning, coordination and implementation of the branch geographic information system and procedure development for various uses within WMAs.

Work continued on a planning document for the WMA system. A review of plans for specific wildlife management areas continued to ensure that each management area has a current and accurate plan or management guidelines which conform to overall provincial policy and land management goals. GIS projects included a woodland caribou habitat and forest cutting study on the east side of Lake Winnipeg, provincial moose management and the WMA systems plan.

Crown land inventories were initiated in the Western, Interlake and Eastern Regions as pilot projects to document wildlife habitat related information. This will support Wildlife Branch input into the Crown land coding process, resolution of land-use concerns, and provide better background information for assessing wildlife use on Crown lands. Operational Support funds were allocated for salary, mileage and expenses to hire seasonal staff to conduct the inventories under the supervision of Regional Wildlife staff. This information has already been used to establish new individual quarter section development codes and to deal with several specific land use issues.

The Manitoba Forestry-Wildlife Management Project was initiated in 1990-91. The project is to be a five-year cooperative effort involving Abitibi-Price Inc., Repap Manitoba Inc., Wildlife Habitat Canada and Manitoba Natural Resources. The goal of the project is to develop a habitat-based process to facilitate the integration of forest and wildlife management plans by resource managers (wildlife and forestry, government and industry) for areas where these activities occur on a common land base.

In its first year staff involved with the project directed their attention at developing objectives and procedures. As well, they coordinated and directed the collection of habitat information by field crews employed by industry and government.

Critical Wildlife Habitat Program

The Critical Wildlife Habitat Program (CWHP) entered its second year of implementation. Manitoba Natural Resources, Wildlife Habitat Canada, Manitoba Habitat Heritage Corporation, World Wildlife Fund, and the Manitoba Naturalists Society committed funds for habitat initiatives including land acquisition, habitat protection agreements with landowners, habitat

enhancement projects and extension.
In 1990-91 efforts to preserve tall-grass prairie continued. There was also a significant increase in stewardship and related extension activities. Some 6,150 acres of habitat were secured under Five-year Habitat Protection Agreements with landowners, including 1,700 acres voluntarily protected and 4,450 acres protected by paid agreements.

Four parcels of land totalling 1,025 acres were acquired by the program. The CWHP entered into cooperative agreements with the Turtle River and Whitemud Watershed Conservation Districts to purchase three additional parcels of critical upland habitat totalling 480 acres.

Nine habitat management and enhancement projects were undertaken including prescribed burning to perpetuate native grasslands, construction of watering areas for wildlife and placement of artificial nest structures for rare and endangered species.
Communication and extension efforts were furthered through development of a "Critical Wildlife Habitat Program" promotional brochure and a "Prairie Grasslands Guide Book." Efforts were also initiated to obtain video footage for use in future public service announcements.

Allocation and Inventory

Over 300 proposals under The Environment Act were reviewed, along with applications for Crown land leases, permits and sales. The Repap five-year plan, Abitibi-Price eight-year plan, Conawapa and Bipole III were also evaluated.

Draft policy and procedure directives were prepared to regulate vehicle use on resource roads and trails on Crown land. These directives will assist in the protection of resource values and ensure integrated management of resources.

A joint Highways-Wildlife Committee was established to develop guidelines to mitigate new road construction activities as well as set guidelines for maintenance and operation of provincial roads and provincial trunk highways.

Conservation Corridors

The Conservation Corridor program, with its primary focus in southwestern Manitoba, was initially developed in conjunction with the Conservation Districts to maintain or restore tree, shrub or grass cover along unused municipal road allowances. Municipal councils implement the program by enacting a Right-of-Way bylaw stipulating that specified undeveloped road allowances be preserved in their natural state. The Wildlife Branch role in the program has been in distributing information and providing assistance to other groups and agencies who wish to develop Right-of-Way management programs.

In 1990-91, three rural municipalities passed Right-of-Way bylaws bringing the total to 16 municipalities.

North American Waterfowl Management Plan (NAWMP)

The North American Waterfowl Management Plan (NAWMP) took a major step forward on August 9, 1990 with the official announcement, by the Minister of Natural Resources, of its implementation in Manitoba. Responsibility for coordination of the program was delegated to the Manitoba Habitat Heritage Corporation (MHHC).

This 15-year, continent-wide conservation initiative is designed to restore declining waterfowl populations to levels experienced in the 1970's. The implementation plan calls for the expenditure of $134.0 million to achieve a spring breeding population of two million ducks, including 400,000 mallards, in southwestern Manitoba. NAWMP programs are designed to conserve soil, water and a broad spectrum of wildlife species on 500,000 acres of land in the prairie pothole region.

In assuming the role of coordinating NAWMP implementation, the Board of Directors of MHHC was re-formulated to reflect the NAWMP partnership and important target groups. As well, four staff from the Wetland Section of the Wildlife Branch were seconded to MHHC to support program delivery.
NAWMP funding partners in Manitoba include Manitoba Natural Resources, Manitoba Agriculture, Agriculture Canada, Ducks Unlimited Canada, Environment Canada, North American Wildlife Foundation, Wildlife Habitat Canada and a number of public and private U.S. agencies.

NAWMP field offices were established in the autumn in Killarney, Minnedosa, Shoal Lake and Virden and charged primarily with the task of delivering the private lands component of the NAWMP. Recognizing that wildlife is a public resource, often produced at private expense, the NAWMP offers landowners incentives to improve existing waterfowl habitat complexes by enhancing waterfowl nesting cover. This includes leasing or purchasing of cultivated and non-cultivated lands with high waterfowl production potential, followed by a variety of treatments to establish or improve waterfowl nesting cover. The NAWMP also

promotes farming practises that improve waterfowl production incentives were offered for under-seeding of legumes in cereal crops (to be cut or ploughed under after the peak of waterfowl nesting), perennial forage establishment and delayed hay-cut, and planned grazing systems designed to improve beef production and improve cover for ground-nesting birds, including waterfowl. Farming for Tomorrow groups in the NAWMP target areas are offered support for the purchase of conservation tillage and direct seeding equipment as well as reduced tillage approaches to cropland fallow.

Field representatives hired by MHHC took the lead role in field level communications and extension as well as land acquisition. Delivery of other programs rests with Ducks Unlimited Canada.

Enhanced waterfowl crop damage prevention and compensation programs, funded cooperatively by the federal and provincial government, feature prominently in the NAWMP and have served to increase acceptability of its associated population enhancement initiatives in the NAWMP target area.

The Habitat Enhancement Land Use Program (HELP)

In its fifth year, the HELP program, with a wide array of farmer friendly habitat initiatives, achieved its overall acreage objectives. By December 1990, 81 lease agreements, constituting 3,766 hectares, were signed up in the HELP program target area, the Rural Municipality of Shoal Lake.

Supported by Wildlife Habitat Canada (50%), Ducks Unlimited Canada (25%) and Manitoba Natural Resources (25%), this eight-year, $3.0 million program was established to devise, deliver and evaluate innovative habitat securement and enhancement initiatives in the intensively-farmed prairie pothole landscape. As such, it became an important precursor to the implementation of the North American Waterfowl Management Plan. The RM of Shoal Lake was chosen to be the test site for this new mix of habitat programs because it offered a cross section of prairie wetland and upland habitat as well as range of farm operations (mixed farming and straight grain production).

Lease agreements and management programs of five to seven years duration focused on idle upland cover, native forage areas, dense nesting cover establishment on cultivated land and tame forage establishment (delay-cut). One peninsula was isolated with a predator-proof fence and a waterfowl nest basket program was established.

One land parcel (259 ha) was purchased with the support of the Canadian Wildlife Service. Cultivated portions were planted with native grass species and the rest maintained in native vegetative cover.

An ongoing evaluation program concentrated on waterfowl production accruing from HELP initiatives. Overall duck nest success in HELP program areas were in the 40% range, considerably higher than nesting success reported across the prairie and parklands.

The unqualified success of HELP demonstrated that delivery by locally-based field staff, listening to the advice and concerns of the local community, is essential.

The Heritage Marsh Program

The Heritage Marsh Program is a cooperative agreement to protect significant areas of wetland habitat for all Manitobans. To the list of designated Manitoba Heritage Marshes - Grant's Lake WMA, Oak Hammock Marsh WMA, Proven Lake WMA, Saskeram WMA and Summerberry Marsh WMA - two more areas, Lidcliff Marsh and Delta Marsh, were added during the year. Six of these seven Heritage Marshes have some water control works and extensive nesting cover in adjacent lands.

Major works were initiated at two Heritage Marshes. At Whitewater Lake near Boissevain, land securement was completed and Ducks Unlimited began construction of a water control system that will considerably enhance the east side of the basin. The project encompasses 1518 hectares and includes upland nesting cover, backflood irrigation and marsh development components. Expenditures on land acquisition and construction totalled $186,000.

Ducks Unlimited also began construction on the Lynch Point project on the west side of Delta Marsh. This project required land securement and is proceeding with dyke construction on one of two planned water control cells. Wetland development encompassed 251 hectares and 65 hectares of upland nesting cover was secured. Expenditures totalled $162,000. At the east end of Delta Marsh, planning continued on the Lake Francis proposed development and the province has supported these efforts by establishing the area as a Wildlife Management Area and initiating a channel connection with Lake Manitoba.

Eighteen major marsh projects are in various stages of the planning process. Existing, but inadequate, water

control structures at Grants Lake, 50 km north of Winnipeg, were examined for upgrading in 1992. Big Grass Marsh, the original wetland project of Ducks Unlimited, was examined by users and managers to develop an integrated approach to management of that flood-prone basin. The Turtle River Marsh Advisory Committee has also met on a regular basis to develop a suitable plan for that area. Other candidate Heritage Marshes are, for the most part, at earlier stages of the development process.

Facility Enhancement

This capital budget was dedicated to various maintenance and construction projects and to the purchase of computer equipment.

Construction at the snake denning sites in the Narcisse Wildlife Management Area continued in 1990-91. A retention wall was built at one den site to prevent erosion, a new well was dug and a pump was installed. Interpretive tours and site maintenance were conducted during the peak periods of visitor use.

Weed control continued on wildlife management areas involving the Weed Control District, using contract spraying, mowing or biological controls.

Wildlife management area feature signs were purchased and erected on several wildlife management areas, including the newly established Lake Francis Wildlife Management Area. Vehicle restriction signs were posted at the Souris River Bend and Lauder Sandhills WMA's. Boundaries were also posted on various areas. Improvement of public access to various areas continued. Trails were upgraded in several wildlife management areas. Maintenance was done on the Lake Road and the River Road in the Mantagao Lake WMA by the Department of Highways. This was cost-shared with Forestry Branch.

Materials were purchased for a new warehouse to be built at Beausejour at a later date and a contribution was made toward the Interlake regional warehouse. Field stations at Chatfield, Clandeboye, Churchill and Delta Marsh were repaired and maintained.

Table WI.6
Expenditure by Sub-appropriation 12-9(c) (Habitat Management)

9(c) Habitat Management	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	401,900	10.00	401,200	700	
Other Expenditures	437,000		515,500		
- Grants/Transfer Payments	360,000		360,000		
Total Other Expenditures	797,000		875,500	(78,500)	

Biological Services

The Biological Services Section is responsible for obtaining biological information on wildlife species and their habitats, particularly on those species in high demand, for developing and refining management programs.

In 1989-90, over 10,000 big game questionnaires were sent to an estimated 50,000 hunters with return rates from 54-100%. Survey results covered 45 season/species types. Questionnaires were not used to determine furbearer population abundance and trends in 1990-91 largely due to poor returns in 1989-90. New initiatives for furbearer censuses and burn monitoring were given a higher priority.

During the 1990-91 season, 873 furbearer carcasses (mostly marten, fisher, lynx and wolf) were analyzed. Excellent age/sex ratios existed for the species and areas sampled. Most specimens came from the Duck Mountain and the Northwest Region where access and contributor motivation were best.

Of 366 lynx pelts tagged, only 110 carcasses were received for analysis (22% of the reported harvest). Reduced lynx age/sex data contributed to difficulties in assigning appropriate quotas for RTL Districts and Sections. From specimens received it appeared that northern areas were in the early stages of the decline phase of the population cycle while the area east of Lake Winnipeg is in the increasing phase. The intent is to maintain sufficient population of lynx through the

upcoming low point in the cycle to ensure adequate breeding stock into the next peak.

Wolverine pelt tagging was also instituted in 1990-91. Twenty-three were tagged and 11 carcasses analyzed.

The monitoring program was divided into five sub-programs: Jaws, Bear/Fire, Big Game Surveys, Deer Co-operator and Equipment. Participation by hunters in the Jaw and Female Reproductive Tract Program declined approximately 17% from the previous year. These data are some of the indicators followed to determine population trends. Even with this unexplained decline, the Branch received over 50% of the legal harvest which is one of the highest rates of return across North America. The collection of bear incisors and reproductive tracts became officially included as part of this program in 1989-90. There was a 25% participation rate which was considered good for an initial response.

With demands for black bear hunting increasing and numerous fires destroying large tracts of habitat in the spring of 1989, it was believed that an assessment was needed to determine what impact these fires would have on the movements and densities of black bears. Two areas were selected to evaluate this impact, the Hodgson burn and the Swan-Pelican burn. A bear scent station survey was chosen as the technique to determine bear activities in and out of these burn areas. This year the mechanics of the technique were tested to determine a set of standards and to get a preliminary indication of what the movement patterns were. In general, bears were virtually absent in the burn areas while outside the burn there was some activity. In the spring of 1990 a systematic survey was scheduled to commence for monitoring these areas and evaluating whether this technique can be used to successfully monitor black bears.

Areas requiring population estimates of big game based on criteria set out by the species managers were selected. Aerial surveys were flown in GHA's 2A, 5, 7, 14, 19B, 20, 25 and 29A to obtain these estimates as well as age/sex breakdowns. Biological Service's statistical analyst introduced a more reliable technique for determining population estimates. This action was a direct consequence of recommendations set forth from a December 1989 meeting that reviewed the branch's monitoring program. This technique will be applied to all future aerial surveys.

The deer co-operator program was a four-year pilot study initiated in 1987 to determine whether observations of deer made by volunteers could be used to extrapolate population trends and densities. Data are continuing to be collected and a preliminary analysis will be available at the 1991 monitoring allocation meeting.

A survey was conducted in late July to determine the use of islands in Lake Winnipeg by colonial nesting birds, waterfowl, and Piping Plovers. Some 58 islands were surveyed in total. There were 6,897 Common Tern nests found on 24 different islands, 278 Forster's Tern nests on four islands, 179 Caspian Tern nests on three islands, 13,000 Ring-billed Gull chicks on 21 islands, nearly 3,000 Herring Gull chicks on 35 islands, over 5,000 Double-crested Cormorant nests on 12 islands, and over 1,000 White Pelican chicks on 10 islands. Piping Plovers were found on only two islands. Twelve species of waterfowl were identified in total in 15 locations.

Policy was drafted regarding the control of colonial nesting bird numbers in the Province.

A Provincial Red-sided Garter Snake Management Plan went through several drafts before being approved by the Branch. Contact was made with pickers, buyers, viewers, law enforcement staff, scientists and outside jurisdictions. Frog populations remained low generally in Manitoba, but a number of reports indicate some recovery in the southeast and at some Interlake locations.

Hare populations remained low in the Interlake, high in the west and southwest. They have reached or passed peak numbers in the areas north of Grand Rapids and The Pas. Small mammal numbers are generally low in the boreal forest but high in agricultural areas in the southwest.

Piping Plover

Piping Plover productivity was low in 1990, due in part to untimely increases in water levels on Lake Winnipeg and West Shoal Lake between June 14 and July 4. Water levels were low in all areas forcing plovers to nest in more vulnerable areas. The Gull Bay Sand Spit was officially designated as a Special Conservation Area in honour of Walter Cook, a local Grand Rapids fisherman, hunter, naturalist, trapper and historian. This area contains the largest breeding population of Piping Plovers in the province.

Great Gray Owl

From December 1, 1990 to March 14, 1991, 80 Great Gray Owls were captured and banded. Of these, only four were immature birds that hatched in 1990. This

reflected the lack of nesting effort and poor hatch in 1990. As has so often been the case, nearly twice as many adult females (49) as adult males (27) were captured and released after banding.

In April and May 1990, 139 known natural and man-made nest structures were checked for evidence of breeding owls. Ten were occupied by Great Gray Owls, located in two areas heavily used in 1984, 1987 and 1988. These two major breeding sites, Spruce Siding and Roseau Bog, have been under observation for nesting activity since the early 1970's. Both areas are now protected and managed specifically for Great Gray Owls.

Four aerial surveys using radio-telemetry equipment were conducted between June and November, 1990. A pair of owls found nesting in 1989 southeast of Gillam, Manitoba were discovered far from this location in 1990. On June 24, the female was located 242 km south of Gillam, apparently en route to her 1987 breeding home range in the Roseau Bog, Minnesota, where she was originally radio-marked. On August 1, however, it was located only 14 km farther south from its location on June 24, suggesting that it had settled on a new breeding home range in that area. Meanwhile, the male was relocated 488 km south of its 1989 breeding area on October 29, 1990.

These movements supported the belief that Great Gray Owl habitat in southeastern Manitoba and northern Minnesota periodically harbour breeding owls from a large part of their northern Manitoba and northwestern Ontario range. Furthermore, the large number of Great Gray Owls captured and banded in the winter of 1990 in southeastern Manitoba were likely owls immigrating from more northern regions, as indicated by the movements of the radio-marked individuals. Because no further owls were radio-marked this year, the radio-telemetry aspect of this long-term project is expected to come to an end in June of 1991.

In 1990 the Manitoba Wildlife Federation raised funds for helicopter flying time to assist wildlife research projects in Manitoba. The MWF kindly provided a grant for four hours of flying time to assist in Great Gray Owl research.

Twenty-one volunteers assisted in manning a display that included the tame Great Gray Owl during National Wildlife Week (April 10-15) at a large mall in Winnipeg. Many thousands of people enjoyed seeing a live owl and learned something about owl biology and research. About $2,500.00 was obtained for owl research through donations and sale of photos, posters and buttons.

Educational presentations featuring a tame Great Gray Owl, known affectionately as "Lady Gray'l", were conducted at 12 elementary schools, three universities and 17 public functions. This included a four-day trip to Minneapolis and LaCrosse, Wisconsin. Visits to schools are made only after the students have studied owls and have become involved in fund-raising in support of owl research. This program fits in well with Project WILD and the nature science curriculum, helping to stimulate an interest in wildlife, particularly birds of prey.

Peregrine Falcon

The Southwest Region was involved in the first peregrine falcon release outside of Winnipeg. Five peregrine falcons were held for several weeks and then released from the roof of the McKenzie Seeds building in Brandon. Excellent cooperation from volunteers, local media and in particular McKenzie Seeds, resulted in this release being successful and well publicized.

Threatened and Endangered Species

Prairie Long-tailed Weasel

A national recovery team for the prairie long-tailed weasel was set up and Manitoba chosen to lead its administration. Background information on the species in the three prairie provinces was compiled and summer investigative projects identified and planned.

Grassland Bird Study

Surveys during 1990 revealed a further decline in breeding Burrowing Owl populations (from 34 nesting pairs in 1989 to 19 in 1990), increased Ferruginous Hawk populations (56 nesting pairs; up from a previous high of 35), and a slight decline in breeding Loggerhead Shrike and Baird's Sparrow populations.

Productivity among Burrowing Owls was high as 17 pairs were successful and 99 young fledged (93 of these were banded and colour-marked). Return rates for previously banded Burrowing Owls were encouraging. More than one-third of the nesting adults had been previously banded including four that had originally been banded as immatures. A banded juvenile from Manitoba that turned up on an offshore drilling rig off the coast of Louisiana focused local and international attention on conservation strategies and on recent efforts to understand where Manitoba's owls are overwintering. For the fourth successive year Burrowing Owls were obtained from Saskatchewan and reintroduced in several extensive pastures in southwestern Manitoba. The 1990 release involved

twice as many birds as the previous year (48 juveniles and four adults were released at Broomhill).

Thirty additional nesting structures for Ferruginous Hawks were erected during 1990. Nine structures were used by them during 1990. Ferruginous Hawks experienced low nesting success with 27 pairs successfully producing 83 young, 78 of which were banded and colour-marked. At least one of the nesting birds bore bands identifying it as one that had been banded as a nestling in 1988.

A total of 154 Loggerhead Shrike nests were found and 542 young were banded. Researchers were encouraged to find that 3% of the adults shrikes seen during 1990 had been banded as nestlings in previous years.

Nest drags in August turned up 13 Baird's Sparrow nests some of which still contained eggs or very small young in mid-August. Twenty-two Baird's Sparrow young were banded.

Table WI.7
Expenditure by Sub-appropriation 12-9(d) (Biological Services)

9(d) Biological Services	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	457,700	11.00	453,400	4,300	
Other Expenditures	159,800		148,400		
- Grants/Transfer Payments	12,000		12,000		
Total Other Expenditures	171,800		160,400	11,400	

Regional Management

Regional management budgets provided program supervision support for regional wildlife branch staff to ensure wildlife policy and program implementation and delivery throughout Manitoba. Regional program delivery was further enhanced in 1990-91 with the decentralization of one Wildlife Branch staff to a regional office in Beausejour and two Wildlife Branch staff to a regional office in Swan River.

Regional involvement continued in habitat preservation and management as well as wildlife population surveys in 1990-91. Increased involvement was required in issues related to forestry-wildlife management, environmental assessments, extension, nongame and endangered wildlife.

Efforts to improve wildlife extension in southwestern Manitoba included "Wild Things", a column on wildlife which was carried once a week in 13 rural newspapers throughout southern Manitoba. Regional staff also participated in and delivered Project Wild workshops.

The Game Hunting Area 8 co-operative moose management agreement with aboriginal communities continued into 1990-91 with the official signing of the agreement by moose management board members and Honourable Ministers Harry Enns and James Downey to re-open the area for licensed and treaty hunters in September, 1990. The increase in the moose population was largely attributed to the existence of the moose management agreement.

Additional co-management initiatives are being worked on in other regions of the province. A co-operative initiative between the Skownan First Nation, Waterhen Wood Bison Ranches, and Interlake Wildlife Branch staff is reaching culmination with a planned release of 13 wood bison to the Chitek Lake area early in the new fiscal year.

The Swan River Valley elk relocation program continued with the Swan-Pelican WMA and Game Hunting Area 5 near The Pas as the two priority destination areas for transplants. Although attempts to capture elk for this program in the winter were unsuccessful, the department continued to monitor elk from the previous Swan-Pelican transplant. Elk continued to be sighted in the release area. The trapping program is scheduled to resume next winter.

Forestry-Wildlife integrated resource management guidelines were implemented in all regions. This major new project demanded considerable staff time to provide input into forestry projects. Implementation of

these new guidelines resulted in some areas of disagreement and interpretation which required resolution. There was an initial resistance to the guidelines by industry, but by the end of the year they were accepted.

Forestry road access continued to be a major issue with timber operations in the province. Resolution of the Happy Lake road access, harvesting, as well as the caribou and moose management situation brought to a head the issues of access control and conservation of wildlife in forest harvest areas.

A pilot resource road inventory study was initiated in the Northwest Region to develop a data base system for identifying and coding resource roads in forested regions of Manitoba to facilitate road management in these areas.

Western Region wildlife staff chaired the Turtle River Marsh Technical Committee, an advisory group for the Dauphin Lake basin rehabilitation project. The Technical Committee's mandate is to investigate the integrated development of the Turtle River Marsh for wildlife, agriculture, fisheries and water management. Two major objectives have been identified for the committee to deal with, the development of the marsh for waterfowl production in conjunction with hay production for agricultural use, and the use of the marsh as a silt trap to reduce the silt load being carried into Dauphin Lake by the Turtle River.

Big game surveys for moose, elk and woodland caribou were conducted in various Game Hunting Areas in the province. These surveys provide current information to assist species management and forest management decisions. Game Hunting Area 33 was the site of a deer survey funded by the Manitoba Wildlife Federation. The population along the river systems is as high as two years ago, despite the relatively high harvest that occurred in the 1990 special seasons.

The five-year woodland caribou project was completed in 1990-91. Efforts in the last year of the project concentrated on data collection related to the Happy Lake herd.

Table WI.8
Expenditure by Sub-appropriation 12-9(e) (Regional Management)

9(e) Regional Management	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	668,200	16.00	669,700	(1,500)	
Total Other Expenditures	201,400		178,200	23,200	

Provincial Wildlife Management

Integrated management has become a Department imperative as it moves into the 1990's, and staff participated in many initiatives towards this end. Considerable input was provided in Resource Planning Committee meetings at which land use applications, Indian land selections, tourism applications and most other land use requests were reviewed. Integrated management was demonstrated through the application of forest management guidelines for wildlife. This involved close cooperation with both Forestry Branch and industry staff.

Co-management initiatives with aboriginal people continued to be important. Work continued with the Inter-jurisdictional Caribou Management Board and the communities of Lac Brochet, Tadoule Lake and Brochet. An important task undertaken by the Board was to hire a consultant to evaluate the activities of the Board after eight years of operation, and make recommendations on its continued existence. The Agreement under which the Board was created terminates in June, 1992. There was continued participation with the Wildlife Advisory and Planning Board, a Board established through the Northern Flood Agreement and involving the communities of York Landing, Split Lake, Nelson House, Norway House and Cross Lake. This Board considers all wildlife issues within the Resource Areas defined in the N.F.A. Meetings were also held with representatives from the communities of Pukatawagan and Shamattawa to discuss wildlife agreements, the former directed at the moose and woodland caribou resources and the latter at woodland caribou. The potential agreement with Shamattawa would also include two Ontario communities.

As a result of several large-scale projects being considered for northern Manitoba, staff reviewed Environment Act proposals, guidelines and reports and cooperated with consultants. The projects include the Repap Manitoba Five Year Management Plan, the Manitoba Hydro Conawapa/Bipole III project, and the Manitoba Hydro North Central Electric project. Other major initiatives included the feasibility study for the establishment of a National Park at Churchill, an inter-Departmental committee addressing the issue of consultation with northern Indian Bands and communities, and participating on a working group which addressed the challenges and opportunities for the Wildlife Branch in the 1990's as the primary trustee of Manitoba's wildlife resources.

Table WI.9
Expenditure by Sub-appropriation 12-9(f) (*Northern Development Agreement* - Provincial - Wildlife Management)

9(f) Wildlife Management	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	140,600	3.00	138,900	1,700	
Other Expenditures	77,700		97,900		
- Grants/Transfer Payments	15,000		15,000		
Total Other Expenditures	92,700		112,900	(20,200)	

Fur Management

Manitoba trappers harvested $1.0 million worth of fur in 1990-91, one half million dollars less than last year. The decrease was attributed to an oversupply of pelts on the market, unusually mild winters impairing access by trappers, low demand for long-haired furs, the recession, and activities by animal rights organizations. Market experts believe the downward trend has bottomed out and the industry is recovering. This was evident over the past winter as raw fur prices showed a 20 to 30% increase through the season.

Low pelt prices greatly reduced the harvest of beaver, muskrats and coyotes because it was uneconomical to trap them. Beaver and coyote populations have increased to a point where they are becoming a nuisance. Less evidence of mange in coyotes from southwestern Manitoba was observed, but it was now found to occur in coyotes from the Interlake area, and in timber wolves in the Western and Northern regions.

Fur Unit Staff were involved in several fur workshops throughout the province. The number of workshops and participants was down considerably from previous years due to low fur prices and consequently less interest in trapping. The Trapper Education section was active in three main areas; fur workshops, mandatory trapper education, and public awareness programs. Six fur workshops were conducted at public schools and the trapline training facilities at Wallace and Tramping Lakes. Five mandatory trapper education courses, involving 100 students were conducted and 83 students took the course through the home study method. Fifty-five public school presentations were provided to 2,826 students in 166 schools. Five fur management displays were featured as part of events in Thompson, The Pas, Dauphin, Pequis and Winnipeg. Approximately 25,000 people were contacted through these displays.

Table WI.10

Fur Statistics for the Year Ending August 31st, 1991

Species	Quantity	Average Price $	Production Value $	% of Total Value	Royalty Per Pelt	Royal $
Badger	49	17.00	833	0.1	0.50	25
Bear	654	82.00	53,628	4.8	1.00	654
Beaver	12,241	14.00	171,374	15.2	0.50	6,121
Coyote	2,766	22.00	60,852	5.4	1.00	2,766
Ermine	1,402	2.85	3,996	0.4	0.05	70
Fisher	1,706	60.00	102,360	9.1	1.50	2,559
Fox, Blue	1	14.00	14	0.0	0.50	1
Fox, Cross	188	23.35	4,390	0.4	0.50	94
Fox, Red	3,491	11.00	38,401	3.4	0.50	1,746
Fox, Silver	54	11.40	616	0.1	0.50	27
Fox, White	129	14.60	1,883	0.2	0.50	65
Lynx	372	88.25	32,829	2.9	5.00	1,860
Marten	8,076	57.50	464,370	41.3	1.00	8,076
Mink	4,002	27.50	110,055	9.8	0.50	2,001
Muskrat	10,255	1.55	15,936	1.4	0.05	513
Otter	592	30.00	17,760	1.6	0.75	444
Raccoon	548	8.00	4,384	0.4	0.50	274
Squirrel	4,048	0.85	3,441	0.3	0.05	202
Wolf, Timber	177	174.00	30,798	2.7	1.00	177
Wolverine	29	257.00	7,453	0.7	2.50	73
Total			$1,125,373			$27,745

Table WI.11

Open Area and Registered Trappers Estimated Value of Wild Fur Production for the Fur Year Ending August 31, 1991

Year	Open Area	Registered Trapline	Production Value
1981 - 1982	13,072	3,187	5,564,491.00
1982 - 1983	13,938	3,110	4,313,572.00
1983 - 1984	12,110	2,927	3,783,562.00
1984 - 1985	12,917	2,974	4,764,525.00
1985 - 1986	11,926	2,917	5,061,209.00
1986 - 1987	12,302	2,745	8,070,118.00
1987 - 1988	11,730	2,993	5,393,731.00
1988 - 1989	7,692	2,498	2,259,416.00
1989 - 1990	6,447	2,219	1,563,805.00
1990 - 1991	5,030	1,730	1,125,373.00

Table WI.12
Expenditure by Sub-appropriation 12-9(g) (Fur Management)

9(g) Fur Management	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	411,500	12.26	466,800	(55,300)	
Other Expenditures	258,200		333,500		
- Grants/Transfer Payments	89,900		75,400		
Total Other Expenditures	348,100		408,900	(60,800)	

Canada-Manitoba Waterfowl Damage Agreement

Due to the dry late summer and fall for much of the province in 1990, there was little crop damage caused by geese, ducks and sandhill cranes. The $373,400.00 expenditure under the Waterfowl Crop Damage Prevention Program was shared equally between Manitoba and Canada.

Two feeding stations, 11 Crown land lure crops (comprising 889 acres of crop) and one lure crop purchased on private land (80 acres in total) were used to feed waterfowl in damage prone areas. Additionally, program staff assisted farmers in scaring waterfowl from unharvested crops with crackershells, scarecrows and propane bangers.

Table WI.13
Expenditure by Sub-appropriation 12-9(h)
(*Canada-Manitoba Waterfowl Damage Agreement*)

9(h) Canada-Manitoba Waterfowl Damage Prevention Agreement	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Other Expenditures	298,100		471,200	(173,100)	1.

Explanation Number:

1. *Expenditures were lower than anticipated for the prevention of crop damage by migratory waterfowl due to an early harvest.*

Commercial Wildlife Management

Wildlife Allocation to Non-Resident Recreational Hunting Commercial Operations

The Non-Resident Black Bear Allocation Program, whereby non-resident (non-Canadian) black bear licenses are allocated with operating areas to lodge owners and outfitters was functional province-wide in 1990-91. The objectives of the program were to regulate the non-resident harvest of black bears, maximize the use of available resources and maximize economic returns to the people of Manitoba. It is estimated that the non-resident black bear hunt will generate in excess of $2.25 million in rural Manitoba economies.

The 1988-89 Non-Resident Moose Allocation Program, designed to allocate non-resident (non-Canadian) moose licences and areas of operation to lodge owners and outfitters, coordinated the distribution of 126 licenses.

Potential for license sale increases to non-residents is severely limited by the lack of limited resources in many areas and priority commitments to subsistence and resident recreational hunters.

Wood Bison Management

Wood Bison, an endangered species, were introduced to Manitoba's Waterhen area in 1984 in co-operation with Waterhen First Nation. The project has been guided and managed by a multi agency board known as Waterhen Wood Bison Ranches Limited.

The sex ratio of the captive herd was restructured to improve calf production. This has resulted in an increase in the number of calves born at the Waterhen compound. Other animal husbandry and land use practises such as rotational grazing and development of hay sources within the compound have resulted in greatly improved herd maintenance.

Commercial development of the captive herd is still being pursued, but the main focus of the board is to improve the recovery of wood bison from its endangered status. There are only some 2200 pure wood bison in the world today. The bison at Waterhen comprise ten percent of the world population and are extremely important to the survival of the species.

Co-management

Co-management initiatives were developed as a means to resolve wildlife management concerns by involving aboriginal people in management decisions at the local community level. The success achieved at The Pas in moose management, Waterhen in moose, wood bison and land use management and the Barren-ground Caribou Program have lead the way for the development of other co-management agreements. Other avenues are also being explored including the use of traditional aboriginal teachings and views respecting wildlife and blending this with the contemporary aspects of wildlife management. This strategy will also outline processes to guide wildlife managers when developing management strategies for snakes, big game, migratory birds and public education. This will be a province-wide initiative in 1991-92.

Table WI.14

Expenditure by Sub-appropriation 12-9(j) (Commercial Wildlife Management)

9(j) Commercial Wildlife Management	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Salaries	243,900	7.00	271,800	(27,900)	
Other Expenditures	287,700		247,300		
- Grants/Transfer Payments	300		4,000		
Total Other Expenditures	288,000		251,300	36,700	

Table WI.15

Expenditures by Sub-appropriation 12-9(k) (Endangered Species)

9(k) Endangered Species	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Other Expenditures	57,500		.....	57,500	1
Recoveries-Environmental Innovations Fund	(57,500)		.....	(57,500)	1

Explanation Number:

1. *The Department implemented an Endangered Species Program. The cost of the program was funded from the Environmental Innovations Fund.*

Section 14

Commissions, Corporations, Grants and Projects

Venture Manitoba Tours Ltd.

The objective is to provide funding to allow the Province of Manitoba, the sole shareholder of Venture Manitoba Tours Ltd., to recognise a reduction in the value of its holding in Venture Manitoba Tours Ltd. by the loss projected by the corporation in the fiscal year; and the provision for the payment of interest on a capital improvement loan.

Table AF.1

Expenditure by Sub-appropriation 12-1(j)(Venture Manitoba Tours Ltd.)

1(j) Venture Manitoba Tours Ltd.	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Other Expenditures	34,000		75,000	(41,000)	1

Explanation Number:

1. *The variance reflects lower than anticipated operating losses for the Corporation in 1990/91.*

Special Resource Projects

The objectives of the Special Resource Projects Section are to monitor the development of international and inter-provincial water projects, to co-ordinate Manitoba's input into the control of such projects, to provide information to the public, and to co-ordinate departmental involvement in issues arising from hydro development and co-management of water resources.

In 1990/91, developments in respect to the Garrison Diversion Unit in North Dakota continued to be monitored. Manitoba participated with Canada, United States and North Dakota officials in a technical review of concerns which have been raised by Manitoba and in a review of development plans.

The Souris River Bilateral Water Quality Monitoring Group was activated and Water Quality Objectives have been established and accepted for the Souris River at both the Saskatchewan/North Dakota and North Dakota/Manitoba borders.

Participation was continued in ongoing negotiations with the Moose Lake Indian Band, the Community of Moose Lake, the Chemawawin First Nation and the Community of Easterville towards a final settlement of issues that have resulted from the construction of the Grand Rapids Hydroelectric Dam and Forebay.

The concerns and interests of the Department in respect to the Northern Flood Agreement were represented during participation in global negotiations with the Split Lake Cree First Nation regarding its entitlements under the Agreement.

The Section provided consultative services to other branches of the Department regarding matters associated with real property taxation and associated concerns relating to the occupancy of recreational sites as principle residences and tax collections from occupiers of Crown land.

Table AF.2

Expenditure by Sub-appropriation 12-11(a) (Special Resource Projects)

11(a) Special Resource Projects	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Other Expenditures	53,500		85,400	(31,900)	

Special Conservation Fund

The objective of the Special Conservation Fund is to promote the principles of sustainable development through the provision of grants to support and encourage local community involvement in visible projects which demonstrate a close linkage between conservation and the provincial economy. In 1990/91 the Fund, through grants, supported forty individual local projects throughout the province. Projects of particular note were peregrine falcon release, winter aeration of several lakes, fish spawning enhancement and support of the Dauphin Lake Awareness Centre.

Table AF.3

Expenditure by Sub-appropriation 12-13(a) (Special Conservation Fund)

Special Conservation Fund	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Other Expenditures	500,000		500,000	0	

Habitat Enhancement Fund

In 1990-91 the Habitat Enhancement Fund provided a grant to the Manitoba Habitat Heritage Corporation, Critical Wildlife Habitat Program component, for the protection of wildlife habitats through land acquisition, habitat protection agreements (leases) and habitat development projects. Critical Wildlife Habitat Program projects were approved by the board of directors of the corporation. Appointment to the board is by the Lieutenant Governor in Council.

Table AF.4

Expenditure by Sub-appropriation 12-11(b) (Habitat Enhancement Fund)

11(b) Habitat Enhancement Fund	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Other Expenditures	....		....		
- Grants/Transfer Payments	100,000		100,000		
Total Other Expenditures	100,000		100,000	0	

Natural Resources Institute Grant

The objective is to provide a grant to the Natural Resources Institute, University of Manitoba, in support of student research projects related to the management, allocation and protection of natural resources.

Table AF.5

Expenditure by Sub-appropration 12-11(c) (Natural Resources Institute Grant)

11(c) Natural Resources Institute Grant	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Other Expenditures	....		....		
-Grants/Transfer Payments	20,000		20,000		
Total Other Expenditures	20,000		20,000	0	

Sustainable Development

The Manitoba Government has adopted sustainable development as acentral part of its economic and environmental agenda. It is committed to building a future based on economic development in harmony with our environment. The sub-appropriation for sustainable development supports the development of the strategies and educational and promotional programs to move Manitobans towards sustainable development.

Table AF.6

Expenditure by Sub-appropriation 12-11(d) (Sustainable Development)

11(d) Sustainable Development	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Total Other Expenditures	223,100		225,000	(1,900)	

Acquisition/Construction of Physical Assets: Other Capital Projects

The objectives are to provide funding for the construction and upgrading of park facilities, bridges, waterways, dams and flood-control works for the benefit of Manitobans; to purchase equipment and land required by the department for programs and construction works; and to develop recreational lots for the use and enjoyment of Manitobans.

Table AF.7

Expenditure by Sub-appropriation 12-12(a) (Acquisition/Construction of Physical Assets: Other Capital Projects)

12A Acquisition/Construction of Physical Assets	Actual 1990/91 $	SY	Estimate 1990/91 $	Variance Over (Under)	Expl. No.
Other Expenditures	8,002,900		8,744,400		
- Grants/Transfer Payments	250,000		250,000		
Total Other Expenditures	8,252,900		8,994,400	(741,500)	1

Explanation Number:

1. *The majority of the underexpenditure was due to problems encountered with acquisition of right-of way for the Gimli Flood Protection Project.*

RECONCILIATION STATEMENT

DETAILS	1990/91 ESTIMATES
1990/91 MAIN ESTIMATES	$110,349,200
ALLOCATION OF FUNDS FROM:	
- Canada-Manitoba Enabling Vote	477,000
- Statutory Funding	111,000
1990/91 ESTIMATE	$110,937,200

Department of Natural Resources

Revenue Summary By Source

for the year ended March 31, 1991 with comparative figures for the previous year

Actual 1989/90	Actual 1990/91	Increase (Decrease)	Source	1990/91 Actual	1990/91 Estimate	Variance	Expl. Number
			Current Operating Programs				
			Other Revenue:				
156,300	173,400	17,100	(a) Fisheries	173,400	176,800	(3,400)	
2,306,000	2,447,100	141,100	(b) Forestry	2,447,100	2,911,000	(463,900)	1
480,500	443,900	(36,600)	(c) Lands	443,900	466,000	(22,100)	
5,601,500	5,537,400	(64,100)	(d) Parks	5,537,400	5,709,200	(171,800)	
933,300	1,635,800	702,500	(e) Regional Services	1,635,800	1,489,500	146,300	2
356,600	600,300	243,700	(f) Surveys and Mapping	600,300	675,000	(74,700)	3
4,448,300	4,313,700	(134,600)	(g) Vendor Licence Sales	4,313,700	4,543,600	(229,900)	
29,246,300	32,921,500	3,675,200	(h) Water Resources	32,921,500	34,123,800	(1,202,300)	4
168,400	290,900	122,500	(i) Wildlife	290,900	341,300	(50,400)	5
444,700	427,400	(17,300)	(j) Sundry	427,400	466,200	(38,800)	
44,141,900	48,791,400	4,649,500	Sub-Total	48,791,400	50,902,400	(2,111,000)	
			Government of Canada:				
18,800	15,000	(3,800)	(a) Beaver Damage Control Agreement	15,000	30,000	(15,000)	6
35,400	.....	(35,400)	(b) Flood Damage Reduction Agreement	.....	50,000	(50,000)	7
342,400	192,400	(150,000)	(c) Indian Wildlife Management Contribution Agreement	192,400	342,400	(150,000)	8
427,500	.....	(427,500)	(d) Seedling Agreement	.....	.....	0	9
1,290,300	1,145,200	(145,100)	(e) Softwood Lumber Export Recovery	1,145,200	1,200,000	(54,800)	
177,000	178,400	1,400	(f) Migratory Waterfowl Crop Damage Prevention Agreement	178,400	257,300	(78,900)	10
2,291,400	1,531,000	(760,400)	Sub-Total	1,531,000	1,879,700	(348,700)	
46,433,300	50,322,400	3,889,100	Total Current Operating Programs	50,322,400	52,782,100	(2,459,700)	

Department of Natural Resources

Revenue Summary By Source

for the year ended March 31, 1991 with comparative figures for the previous year

Actual 1989/90	Actual 1990/91	Increase (Decrease)	Source	1990/91 Actual	1990/91 Estimate	Variance	Expl. Number
			Revenues Related to Capital				
			Other Revenue:				
742,800	1,017,200	274,400	(a) Lands	1,017,200	450,000	567,200	11
100,000	202,500	102,500	(b) Water Resources	202,500	329,100	(126,600)	12
842,800	1,219,700	376,900	Sub-Total	1,219,700	779,100	440,600	
			Government of Canada:				
31,900	71,400	39,500	(a) Agri-Food Agreement - Cooks Creek	71,400	.....	71,400	13
310,700	94,200	(216,500)	(b) Flood Protection Projects Agreement	94,200	54,000	40,200	14
342,600	165,600	(177,000)	Sub-Total	165,600	54,000	111,600	
1,185,400	1,385,300	199,900	Total Revenue Related to Capital	1,385,300	833,100	552,200	
47,618,700	51,707,700	4,089,000	Total Revenue	51,707,700	53,615,200	(1,907,500)	
104,900	42,100	(62,800)	Sale of Government Assets	42,100	68,000	(25,900)	

Explanation Number:

1. *The decrease in actual revenue received to the 1990/91 Estimate is due to the depressed pulp and paper and lumber markets and to delays in implementing the Forest Renewal Charge.*
2. *The year over year increase in Regional Services revenue is due mainly to a payment received from Canada for costs related to suppression of wildfires on Indian Reserve land during the 1989 fire season.*
3. *The year over year increase in Surveys and Mapping revenue is due to a one-time contract being undertaken for the production of aerial photography.*
4. *The year over year increase in Water Resources revenue is due to a Water Power Rental rate increase being in effect for only the last quarter of 1989/90 while in effect throughout 1990/91. The increased revenue also reflects increased water flows in 1990/91 over 1989/90.*

   The decrease in actual revenue received to the 1990/91 Estimate is due to actual water flows being below the long term means that were used to develop the revenue estimate.

Department of Natural Resources

Revenue Summary By Source

for the year ended March 31, 1991 with comparative figures for the previous year

Actual 1989/90	Actual 1990/91	Increase (Decrease)	Source	1990/91 Actual	1990/91 Estimate	Variance	Expl. Number

5. The year over year increase in Wildlife revenue is due to receipt of delayed revenues for the Habitat Enhancement and Land Use Program.

6. The decrease in actual revenue recieved to the 1990/91 Estimate reflects the assumption that when the Beaver Damage Control Agreement was renegotiated the shareable costs would remain at $30,000, however the cost-sharing was reduced to a maximum of $15,000.

7. The year over year decrease and the decrease in actual revenue received to the 1990/91 Estimate results from no work being carried out under the Flood Damage Reduction Agreement in 1990/91 due to staff shortages.

8. The year over year decrease and the decrease in actual revenue received to the 1990/91 Estimate is due to delays in processing the last quarter claim to Canada for the 1990/91 fiscal year.

9. The year over year decrease in revenue reflects a one-time agreement with Canada for seedling production for the 1989/90 fiscal year.

10. The decrease in actual revenue to the 1990/91 Estimate results from no claims being processed for the 1990/91 fiscal year as the agreement with Canada had not been finalized.

11. The year over year increase and the increase in actual revenue received to the 1990/91 Estimate is due to 1990/91 being the first year that revenue was received from the sale of undeveloped recreational lots and the unanticipated increase in sales of recreational lots.

12. The year over year increase in Water Resources capital related revenue is due to increased revenue from municipalities for related flood protection projects.

The decrease in actual revenue to the 1990/91 Estimate is due to lower than anticipated project costs for municipal flood protection projects.

13. The year over year increase in revenue related to the Agri-Food Agreement reflects increased project costs during the 1990/91 fiscal year.

The increase in actual revenue to the 1990/91 Estimate is due to the receipt of revenue from Canada for project costs that were not anticipated when the estimates were formulated.

14. The year over year decrease in revenue is due to the reduced level of work undertaken under the agreement during the 1990/91 fiscal year. The agreement terminated March 31/91 and the work undertaken involved completing the projects that remained.

Department of Natural Resources

Expenditure Summary

for fiscal year ended March 31, 1991 with comparative figures for the previous year

Estimate 1990/91	Appropriation	Actual 1990/91	Actual 1989/90	Increase (Decrease)	Explanation Number
	12-1 Administration and Finance				
20,600	(a) Minister's Salary	20,500	20,500		
	(b) Executive Support:				
252,100	Salaries	259,600	244,000	15,600	
107,700	Other Expenditures	104,100	112,300	(8,200)	
	(c) Resource Integration:				
624,300	Salaries	626,000	566,000	60,000	
55,500	Other Expenditures	51,700	43,000	8,700	
	(d) Financial Services:				
941,300	Salaries	920,900	868,800	52,100	
220,500	Other Expenditures	213,300	221,200	(7,900)	
	(e) Human Resource Management:				
977,900	Salaries	997,400	930,400	67,000	
169,400	Other Expenditures	166,100	201,200	(35,100)	
	(f) Computer Services:				
267,600	Salaries	259,100	304,100	(45,000)	
40,600	Other Expenditures	40,600	40,500	100	
	(g) Administrative Services:				
747,100	Salaries	696,800	794,400	(97,600)	
122,400	Other Expenditures	117,900	112,200	5,700	
	(h) Internal Audit:				
159,400	Salaries	136,600	149,000	(12,400)	
9,400	Other Expenditures	8,700	9,700	(1,000)	
75,000	(j) Venture Manitoba Tours Ltd.	34,000	106,800	(72,800)	
4,790,800	Total 12-1	4,653,300	4,724,100	(70,800)	

Department of Natural Resources

Expenditure Summary

for fiscal year ended March 31, 1991 with comparative figures for the previous year

Estimate 1990/91	Appropriation	Actual 1990/91	Actual 1989/90	Increase (Decrease)	Explanation Number
	12–2 Regional Services				
	(a) Administration:				
1,285,500	Salaries	1,270,300	1,227,800	42,500	
917,900	Other Expenditures	907,900	919,700	(11,800)	
204,600	Problem Wildlife Control	166,600	187,900	(21,300)	
	(b) Northwest Region:				
1,242,700	Salaries	1,253,300	1,176,200	77,100	
397,500	Other Expenditures	393,100	402,300	(9,200)	
	(c) Northeast Region:				
1,301,500	Salaries	1,311,700	1,236,600	75,100	
700,300	Other Expenditures	710,800	696,200	14,600	
	(d) Interlake Region:				
1,354,800	Salaries	1,303,900	1,582,300	(278,400)	
462,100	Other Expenditures	447,100	482,600	(35,500)	
	(e) Southwest Region:				
907,400	Salaries	888,800	877,600	11,200	
291,100	Other Expenditures	288,000	291,900	(3,900)	
	(f) Western Region:				
1,368,500	Salaries	1,334,100	1,213,300	120,800	
419,000	Other Expenditures	408,000	416,300	(8,300)	
	(g) Southeast Region:				
1,212,900	Salaries	1,139,800	1,074,000	65,800	
333,700	Other Expenditures	337,900	326,100	11,800	
	(h) Eastern Region:				
1,179,000	Salaries	1,171,900	1,079,500	92,400	
352,900	Other Expenditures	343,300	347,500	(4,200)	

Department of Natural Resources

Expenditure Summary

for fiscal year ended March 31, 1991 with comparative figures for the previous year

Estimate 1990/91	Appropriation	Actual 1990/91	Actual 1989/90	Increase (Decrease)	Explanation Number
	(j) Whiteshell Region:				
788,400	Salaries	781,700	738,400	43,300	
265,600	Other Expenditures	266,100	264,900	1,200	
	(k) Fire Program Development and Evaluation:				
271,400	Salaries	227,300	255,800	(28,500)	
249,600	Other Expenditures	235,400	242,200	(6,800)	
	(m) Fire Detection Program:				
44,500	Salaries	40,800	39,300	1,500	
288,100	Other Expenditures	261,600	240,200	21,400	
	(n) Fire Prevention Program:				
77,800	Salaries	72,700	22,500	50,200	
70,300	Other Expenditures	85,700	65,100	20,600	
	(p) Fire Pre-Suppression Program:				
1,593,800	Salaries	1,543,400	1,279,800	263,600	1
2,909,100	Other Expenditures	2,743,200	2,138,700	604,500	1
12,000,000	(r) Fire Extra-Suppression Fund	11,875,300	56,663,000	(44,787,700)	2
	(s) Fire Tac Program:				
239,200	Salaries	239,200	.....	239,200	1
1,053,300	Other Expenditures	1,031,100	991,600	39,500	
	(t) Helitac Program:				
429,800	Salaries	429,800	.....	429,800	1
1,721,800	Other Expenditures	1,700,400	1,293,000	407,400	3
35,934,100	Total 12-2	35,210,200	77,772,300	(42,562,100)	

Department of Natural Resources

Expenditure Summary

for fiscal year ended March 31, 1991 with comparative figures for the previous year

Estimate 1990/91	Appropriation	Actual 1990/91	Actual 1989/90	Increase (Decrease)	Explanation Number
	12–3 Engineering and Construction				
	(a) Administration:				
585,100	Salaries	524,700	504,300	20,400	
216,100	Other Expenditures	183,300	246,800	(63,500)	
	(b) Technical Services:				
1,660,100	Salaries	1,622,300	1,664,000	(41,700)	
97,400	Other Expenditures	91,600	97,500	(5,900)	
(55,000)	Less: Recoverable from Other Appropriations	(81,900)	(91,300)	9,400	
	(c) Regional Engineering Services:				
3,823,300	Salaries	3,795,100	3,837,200	(42,100)	
1,030,000	Other Expenditures	809,100	810,100	(1,000)	
(335,000)	Less: Recoverable from Other Appropriations	(35,600)	(92,100)	56,500	
7,022,000	Total 12–3	6,908,600	6,976,500	(67,900)	
	12–4 Water Resources				
	(a) Administration:				
386,800	Salaries	309,200	316,100	(6,900)	
113,300	Other Expenditures	114,200	128,000	(13,800)	
	(b) Water Licensing and Approvals:				
506,000	Salaries	492,500	513,100	(20,600)	
26,300	Other Expenditures	32,100	29,700	2,400	
	(c) Water Management:				
1,432,700	Salaries	1,509,500	1,307,900	201,600	4
324,500	Other Expenditures	257,800	253,100	4,700	
3,852,800	Waterway Maintenance	3,855,500	3,793,700	61,800	

Department of Natural Resources

Expenditure Summary

for fiscal year ended March 31, 1991 with comparative figures for the previous year

Estimate 1990/91	Appropriation	Actual 1990/91	Actual 1989/90	Increase (Decrease)	Explanation Number
	(d) Hydrotechnical Services:				
1,181,700	Salaries	1,126,500	1,208,100	(81,600)	
836,600	Other Expenditures	835,600	859,000	(23,400)	
	(e) Regional Management:				
350,100	Salaries	350,300	344,300	6,000	
38,500	Other Expenditures	43,700	40,900	2,800	
	(g) Assiniboine Delta Aquifer Management				
.....	Grant	25,000	.....	25,000	5
.....	Less: Recoverable from Innovations Fund	(25,000)	.....	(25,000)	5
9,049,300	Total 12–4	8,926,900	8,793,900	133,000	
	12–5 Parks				
	(a) Administration:				
720,200	Salaries	672,200	582,300	89,900	
202,900	Other Expenditures	203,200	197,800	5,400	
	(b) Park Planning:				
619,800	Salaries	585,900	602,400	(16,500)	
217,000	Other Expenditures	219,200	200,300	18,900	
	(c) Technical Services:				
207,200	Salaries	206,200	214,800	(8,600)	
25,900	Other Expenditures	18,400	40,800	(22,400)	
	(d) Park Operations and Maintenance:				
9,241,900	Salaries	9,236,100	8,718,200	517,900	
2,880,800	Other Expenditures	2,870,200	2,865,100	5,100	
	(e) Visitor Services:				
445,800	Salaries	445,000	420,500	24,500	
76,900	Other Expenditures	67,100	86,600	(19,500)	

Department of Natural Resources

Expenditure Summary

for fiscal year ended March 31, 1991 with comparative figures for the previous year

Estimate 1990/91	Appropriation	Actual 1990/91	Actual 1989/90	Increase (Decrease)	Explanation Number
130,000	(f) Grant Assistance	130,000	170,000	(40,000)	
	(g) Regional Management:				
325,400	Salaries	340,500	304,200	36,300	
70,000	Other Expenditures	71,600	68,400	3,200	
15,163,800	Total 12–5	15,065,600	14,471,400	594,200	
	12–6 Lands				
	(a) Administration				
129,700	Salaries	127,900	128,700	(800)	
26,200	Other Expenditures	25,500	26,000	(500)	
	(b) Crown Land Administration:				
746,400	Salaries	670,800	736,000	(65,200)	
182,600	Other Expenditures	113,500	153,300	(39,800)	
	(c) Regional Management:				
321,200	Salaries	326,600	322,600	4,000	
87,800	Other Expenditures	84,300	83,000	1,300	
	(d) Crown Lands Registry:				
245,400	Salaries	220,300	224,000	(3,700)	
175,700	Other Expenditures	222,500	201,200	21,300	
1,915,000	Total 12–6	1,791,400	1,874,800	(83,400)	

Department of Natural Resources

Expenditure Summary

for fiscal year ended March 31, 1991 with comparative figures for the previous year

Estimate 1990/91	Appropriation	Actual 1990/91	Actual 1989/90	Increase (Decrease)	Explanation Number
	12–7 Forestry				
	(a) Administration:				
220,400	Salaries	228,200	250,100	(21,900)	
5,000	Other Expenditures	4,300	4,700	(400)	
34,400	Grant Assistance	34,400	34,400	0	
	(b) Forest Management:				
805,200	Salaries	790,000	774,800	15,200	
155,600	Other Expenditures	155,300	138,700	16,600	
	(c) Silviculture:				
251,900	Salaries	238,200	248,200	(10,000)	
452,500	Other Expenditures	452,100	447,300	4,800	
	(d) Forest Protection:				
786,500	Salaries	747,600	695,900	51,700	
1,719,700	Other Expenditures	1,832,900	1,967,700	(134,800)	
	(e) Forest Operations:				
1,076,400	Salaries	1,062,700	1,031,400	31,300	
265,600	Other Expenditures	260,300	269,200	(8,900)	
	(f) Forest Regeneration:				
500,700	Salaries	482,200	435,200	47,000	
1,586,200	Other Expenditures	1,583,200	1,574,100	9,100	
	(g) Forest Development Program:				
358,800	Salaries	252,500	340,200	(87,700)	
1,989,300	Other Expenditures	1,987,900	2,036,400	(48,500)	
	(h) Forest Renewal:				
41,300	Salaries	11,700	31,300	(19,600)	
2,906,300	Other Expenditures	2,905,400	2,827,600	77,800	

Department of Natural Resources

Expenditure Summary

for fiscal year ended March 31, 1991 with comparative figures for the previous year

Estimate 1990/91	Appropriation	Actual 1990/91	Actual 1989/90	Increase (Decrease)	Explanation Number
	(j) Sioux–MacDonald Seedling Agreement				
.....	Operating Expenditures	187,400	.....	187,400	6
.....	Less: Recoverable from Innovations Fund	(187,400)	.....	(187,400)	6
	(k) Tree Replacement – City of Winnipeg				
.....	Salaries	67,100	.....	67,100	7
.....	Operating Expenditures	103,600	.....	103,600	7
.....	Less: Recoverable from Innovations Fund	(170,700)	.....	(170,700)	7
13,155,800	Total 12–7	13,028,900	13,107,200	(78,300)	
	12–8 Fisheries				
	(a) Administration				
262,000	Salaries	224,500	223,000	1,500	
51,700	Operating Expenditures	54,400	55,700	(1,300)	
	(b) Regional Management				
1,125,900	Salaries	1,027,300	1,019,900	7,400	
263,500	Operating Expenditures	295,500	254,300	41,200	
	(c) Fish Culture				
611,900	Salaries	624,800	552,700	72,100	
251,200	Operating Expenditures	237,500	220,000	17,500	
	(d) Fisheries Habitat Management				
453,800	Salaries	387,100	460,100	(73,000)	
165,400	Operating Expenditures	98,800	170,900	(72,100)	
	(e) Sport and Commercial Fishing Management				
294,800	Salaries	293,500	247,200	46,300	
80,000	Operating Expenditures	99,100	278,100	(179,000)	8
342,600	(f) Northern Fishermen's Freight Assistance	346,800	422,800	(76,000)	
716,900	(g) Fishermen's Loan Program – Administration	701,800	681,500	20,300	
4,619,700	Total 12–8	4,391,100	4,586,200	(195,100)	

Department of Natural Resources

Expenditure Summary

for fiscal year ended March 31, 1991 with comparative figures for the previous year

Estimate 1990/91	Appropriation	Actual 1990/91	Actual 1989/90	Increase (Decrease)	Explanation Number
	12-9 Wildlife				
	(a) Administration:				
258,000	Salaries	245,400	238,300	7,100	
81,300	Other Expenditures	92,100	111,700	(19,600)	
	(b) Operational Management:				
479,100	Salaries	484,800	483,800	1,000	
103,900	Other Expenditures	154,500	161,300	(6,800)	
1,000	Grant Assistance	1,000	1,000	0	
	(c) Habitat Management:				
401,200	Salaries	401,900	401,700	200	
515,500	Other Expenditures	437,000	392,600	44,400	
360,000	Canada-Manitoba Soil Conservation Agreement	360,000	.....	360,000	9
	(d) Biological Services:				
453,400	Salaries	457,700	456,400	1,300	
148,400	Other Expenditures	159,800	152,000	7,800	
12,000	Grant Assistance	12,000	12,000	0	
	(e) Regional Management:				
669,700	Salaries	668,200	633,900	34,300	
178,200	Other Expenditures	201,400	192,300	9,100	
	(f) Wildlife Management:				
138,900	Salaries	140,600	135,900	4,700	
112,900	Other Expenditures	92,700	98,300	(5,600)	1
	(g) Fur Management:				
466,800	Salaries	411,500	442,700	(31,200)	
333,500	Other Expenditures	272,700	265,800	6,900	
75,400	Grant Assistance	75,400	75,400	0	

Department of Natural Resources

Expenditure Summary

for fiscal year ended March 31, 1991 with comparative figures for the previous year

Estimate 1990/91	Appropriation	Actual 1990/91	Actual 1989/90	Increase (Decrease)	Explanation Number
471,200	(h) Canada–Manitoba Waterfowl Damage Prevention Agreement	298,100	293,200	4,900	
	(j) Commercial Wildlife Management:				
271,800	Salaries	243,900	179,000	64,900	
46,500	Other Expenditures	94,100	155,200	(61,100)	
4,000	Grant Assistance	1,800	100	1,700	
200,800	Big Game Damage Compensation	192,100	266,600	(74,500)	
	(k) Endangered Species				
.....	Operating Expenditures	57,500	.....	57,500	10
.....	Less: Recoverable from Innovations Fund	(57,500)	.....	(57,500)	10
5,783,500	Total 12–9	5,498,700	5,149,200	349,500	
	12–10 Surveys and Mapping				
	(a) Administration:				
316,800	Salaries	302,900	331,400	(28,500)	
50,700	Other Expenditures	49,100	68,000	(18,900)	
	(b) Field Surveys:				
720,700	Salaries	739,500	712,600	26,900	
416,200	Other Expenditures	220,600	299,500	(78,900)	
(170,000)	Less: Recoverable from Other Appropriations	(29,500)	(50,600)	21,100	
	(c) Mapping:				
763,600	Salaries	689,900	742,800	(52,900)	
124,500	Other Expenditures	123,900	130,500	(6,600)	
(35,000)	Less: Recoverable from Other Appropriations	(42,100)	(53,900)	11,800	
	(d) Map Distribution and Remote Sensing:				
459,300	Salaries	480,600	440,700	39,900	
376,200	Other Expenditures	328,700	345,900	(17,200)	
(185,000)	Less: Recoverable from Other Appropriations	(120,600)	(176,700)	56,100	

Department of Natural Resources

Expenditure Summary

for fiscal year ended March 31, 1991 with comparative figures for the previous year

Estimate 1990/91	Appropriation	Actual 1990/91	Actual 1989/90	Increase (Decrease)	Explanation Number
	(e) Computer Services and Data Management:				
493,000	Salaries	479,600	472,900	6,700	
136,400	Other Expenditures	140,500	139,700	800	
3,467,400	Total 12-10	3,363,100	3,402,800	(39,700)	
	12-11 Resource Support Programs				
85,400	(a) Special Resource Projects	53,500	168,100	(114,600)	11
100,000	(b) Habitat Enhancement Fund	100,000	200,000	(100,000)	12
20,000	(c) Natural Resource Institute Grant	20,000	20,000	0	
225,000	(d) Sustainable Development	223,100	185,600	37,500	
430,400	Total 12-11	396,600	573,700	(177,100)	
	12-12 Expenditures Related to Capital				
8,994,400	(a) Acquisition/Construction of Physical Assets	8,252,900	8,045,200	207,700	
8,994,400	Total 12-12	8,252,900	8,045,200	207,700	
	12-13 Lotteries Funded Programs				
500,000	(a) Special Conservation Fund	500,000	500,000	0	
500,000	Total 12-13	500,000	500,000	0	
	12-14 Court Judgement				
111,000	QB#C89-01 38204 Bjarnason	111,000	.....	111,000	13
111,000	Total 12-14	111,000	.....	111,000	
110,937,200	**TOTAL EXPENDITURES**	**108,098,300**	**149,977,300**	**(41,879,000)**	

Department of Natural Resources

Expenditure Summary

for fiscal year ended March 31, 1991 with comparative figures for the previous year

Estimate 1990/91	Appropriation	Actual 1990/91	Actual 1989/90	Increase (Decrease)	Explanation Number

Explanation Number:

1. *Increased expenditures in the Fire Pre-Suppression Program, the Fire Tac Program and the Helitac Program are due to the implementation of an Enhanced Fire Program which established an Aerial Attack Program and created new and extended existing staffing within the programs.*
2. *Decreased expenditures in the Fire Extra-Suppression Fund reflect the sharp contrast between the 1989 and 1990 wildfire seasons. The 1989 season was the worst fire season ever experienced in the history of the Province with 1,147 fires burning 3,281,300 hectares of grassland, scrub bush and forested areas. The 1990 season was considered an average season with 568 fires burning 19,758 hectares.*
3. *Increased expenditures in the Helitac Program resulted from an internal rationalization of the payments related to the Fire Program to ensure that only extra-suppression costs are charged to the Extra-Suppression Fund. Effective the 1990/91 fiscal year availability costs for medium lift contract helicopters were charged to the Helitac Program.*
4. *Increased expenditures reflect a decreased vacancy level, vacation paid on termination, General Salary Increase and normal salary adjustments.*
5. *Increased expenditures reflect a one-time grant payment which was funded from the Environmental Innovations Fund.*
6. *Increased expenditures reflect a one-time contract for seedlings for the 1990 planting year which was funded from the Environmental Innovation Fund.*
7. *Increased expenditures reflect a one-time tree replacement program in the City of Winnipeg which was funded from the Environmental Innovation Fund.*
8. *Decreased expenditures in Sport and Commercial Fishing Management reflect the one-time implementation, during the 1989/90 fiscal year, of a buy-back of Lake Winnipegosis fishermen's quotas in order to revitalize the fishery on the lake.*
9. *Increased expenditures in Habitat Management reflect the initial year of funding for Manitoba's contribution under the North American Waterfowl Management Plan as specified in the Canada/Manitoba Soil Conservation Agreement.*
10. *Increased expenditures reflect a one-time endangered species program which was funded from the Environmental Innovations Fund.*
11. *Decreased expenditures in Special Resource Projects reflect a decreased funding requirement for the development of a water strategy and for the operation of the Garrison Diversion opposition program.*
12. *Decreased expenditures reflect a reduction in the grant to the Manitoba Habitat Heritage Corporations due to an increase in funding to the Corporation from other sources under the North American Waterfowl Management Plan. The grant assists the Corporation with their objective of preserving and developing wildlife habitat in the Province.*
13. *Increased expenditures reflect the one-time payment of a court judgement.*

Department of Natural Resources

Five Year Expenditure and Staffing Summary by Appropriation ($000)

for years ending March 31, 1987 – March 31, 1991

	Actual/* Adjusted Expenditures									
	1986/87		1987/88		1988/89		1989/90		1990/91	
APPROPRIATION	SY	$	SY	$	SY	$	SY	$	SY	$
12-1 Administration and Finance	111.25	3,935.2	110.30	5,230.1	115.04	4,463.7	106.30	4,724.1	109.04	4,653.3
12-2 Regional Services	358.36	20,108.2	340.08	27,737.8	340.45	37,604.0	347.45	77,772.3	387.29	35,210.2
12-3 Engineering and Construction	183.26	6,704.3	177.00	6,825.5	168.26	6,860.6	163.26	6,976.5	162.13	6,908.6
12-4 Water Resources	93.00	8,299.2	91.00	8,519.1	91.00	9,326.5	88.00	8,793.9	88.13	8,926.9
12-5 Parks	420.04	13,219.1	417.04	13,705.3	409.04	14,332.9	386.12	14,471.4	383.25	15,065.6
12-6 Lands	46.00	1,946.5	44.00	1,951.8	41.00	2,011.2	37.00	1,874.8	37.00	1,791.4
12-7 Forestry	119.16	13,268.4	115.16	13,243.4	110.31	12,445.0	110.31	13,107.2	110.18	13,028.9
12-8 Fisheries	74.10	3,891.6	74.10	3,967.3	74.10	4,049.3	72.10	4,586.2	73.10	4,391.1
12-9 Wildlife	72.41	4,616.8	74.41	4,744.2	72.41	4,892.5	78.41	5,149.2	76.41	5,498.7
12-10 Surveys and Mapping	74.26	3,008.3	72.00	3,114.3	72.00	3,244.0	72.00	3,402.8	72.00	3,363.1
12-11 Resource Support Programs	2.00	373.4	.....	326.8	.....	364.9	.....	573.7	.....	396.6
Total Operating	1,555.28	79,371.0	1,516.05	89,365.6	1,495.05	99,594.6	1,462.39	141,432.1	1,499.49	99,234.4
12-12 Expenditures Related to Capital		8,817.2		7,230.5		8,680.4		8,045.2		8,252.9
12-13 Lotteries Funded Programs		.....		.....		.....		500.0		500.0
12-14 Court Judgement		.....		.....		.....		.....		111.0
Total	1,555.28	88,188.2	1,516.05	96,596.1	1,495.05	108,275.0	1,462.39	149,977.3	1,499.49	108,098.3

* Adjusted figures reflect historical data on a comparable basis in those appropriations affected by a reorganization during the years under review.

NOTES:

Effective the 1988/89 fiscal year staffing and funding, including capital, related to Jobs Fund programs were transferred to the Department.

Effective the 1989/90 fiscal year staffing and funding, including capital, related to Conservation Districts Authority programs were transferred to the Department of Rural Development.

Effective the 1989/90 fiscal year funding related to Lotteries Funded programs was transferred to the Department.

Section 16
Directory

Legislation of the Department

Crown Lands Act
[Except Section 6, 7, 10, 12(1), 14, 16, 17, 18, 21, 23, 24 to 28 both inclusive, insofar as any relate to the administration of Crown Lands which may be designated by the Minister of Natural Resources as Agricultural Crown Lands, and Agricultural Crown Lands Grazing and Hay Permits Regulation (Manitoba Revised Regulation 288/88) and Forage Leases Regulation (Manitoba Regulation 46/88 R)]
Dutch Elm Disease Act
Dyking Authority Act
Ecological Reserves Act
Fires Prevention Act (Part I)
Fisheries Act
Fishermen's Assistance and Polluters' Liability Act
Forest Act
Ground Water and Water Well Act
Manitoba Habitat Heritage Act
International Peace Garden Act
Lake of the Woods Control Board Act
Manitoba Natural Resources Transfer Act
Manitoba Natural Resources Development Act
(except with respect to Channel Area Loggers Ltd. and Moose Lake Loggers Ltd.)
Natural Resources Agreement Act, 1938
The Manitoba Natural Resources Transfer Act Amendment Act
The Manitoba Natural Resources Transfer Act Amendment Act
Provincial Park Lands Act
Rivers and Streams Act
Surveys Act (Part II)
Water Commission Act
Water Power Act
Water Resources Administration Act
Water Rights Act
Water Supply Commissions Act
Wildlife Act
(except that portion of clause 89(e) that applies to compensation for damage to crops caused by wildlife other than migratory waterfowl)
Wild Rice Act
Manitoba Fishery Regulations made pursuant to Section 34 of the Fisheries Act (Canada)

Departmental Directory

Minister's Office
314 Legislative Building
450 Broadway
Winnipeg, Manitoba
R3C OV8

Minister	945-3730
Executive Assistant	945-5064
Special Assistant	945-1041
Secretary	945-4071

Deputy Minister's Office
314 Legislative Building
450 Broadway
Winnipeg, Manitoba
R3C OV8

Deputy Minister	945-3785
	945-3982
Secretary	945-3785

Assistant Deputy Minister's Office
800 - 1495 St. James Street
Winnipeg, Manitoba
R3H OW9

Assistant Deputy Minister	945-6829
Special Advisor	945-7473
Secretary	945-3536

Administrative Services Division
500 - 191 Broadway
Winnipeg, Manitoba
R3C 4B2

Executive Director	945-4056

Financial Services

Director	945-4187
Disbursements & Contract Management - Supervisor	945-4247
Budget Management - Supervisor	945-4000
Revenue Management - Supervisor	945-4234
Licensing - Supervisor	945-1399

Human Resources

Director	945-2808
Personnel Services - Supervisor	945-2810
Development & Training - Manager	945-6776
Occupational Health and Safety - Safety Officer	945-8855
Payroll Services - Supervisor	945-2812
Personnel Services - Dublin Satellite Office	945-8863

Internal Audit

Manager	945-3993

Risk Management

Chief	945-1632

Operational Support

Chief	945-4170

Systems 945-3949

Fisheries Branch

101 - 1495 St. James Street
Winnipeg, Manitoba
R3H OW9

Sport and Commercial Fishing

Chief	945-7803

Enhancement

Chief	945-7792

Fish Culture

Head	945-7789

Eastern/Southeastern Region

Provincial Building
20 First Street South
Beausejour, Manitoba
ROE OCO

Regional Manager	268-1411

Interlake Region

Industrial Park Complex
Box 6000
Gimli, Manitoba
ROC 1BO

Regional Manager	642-8724

Northeastern Region

Provincial Building
59 Elizabeth Drive
Thompson, Manitoba
R8N 1X4

Regional Manager	677-6650

Northwestern Region

Provincial Building
3rd Street and Ross Avenue
Box 2550
The Pas, Manitoba
R9A 1M4

Regional Manager	623-6411

Southwestern Region

Agriculture Extension Centre
1129 Queens Avenue
Brandon, Manitoba
R7A 1L9

Regional Manager	726-6449

Western Region

Provincial Building
27-2nd Avenue S.W.
Dauphin, Manitoba
R7N 3E5

Regional Manager	638-9111

Forestry Branch

300 - 530 Kenaston Boulevard
Winnipeg, Manitoba
R3N 1Z4

Canada-Manitoba Partnership Agreement in Forestry

Provincial Manager	945-7867

Forest Management

Chief	945-7950

Forest Protection and Dutch Elm Disease

Chief	945-7867

Silviculture

Clearwater Provincial Forest Nursery
Box 2550
The Pas, Manitoba
R9A 1M4

Manager	624-5769

Pineland Provincial Forest Nursery
Box 45
Hadashville, Manitoba
ROE OXO

Manager 426-5235

Interlake Region
Industrial Park Complex
Box 40
Gimli, Manitoba
ROC 1BO

Regional Forester 642-8729

Northeastern/Northwestern Region
Provincial Building
3rd Street and Ross Avenue
Box 2550
The Pas, Manitoba
R9A 1M4

Regional Forester 623-6411

Eastern/Southeastern Region
Box 50, 20 First Street South
Beausejour, Manitoba
ROE OCO

Regional Forester 268-1411

Western/Southwestern Region
Provincial Building
27-2nd Avenue S.W.
Dauphin, Manitoba
R7N 3E5

Regional Forester 638-9111

Lands Branch
700-1495 St. James Street
Winnipeg, Manitoba
R3H OW9

Aboriginal Land Claims
Manager 945-2284

Land Administration
Chief, Land Operations 945-6098
Sr. Wpg. Manager 945-6652

Recreational Land Development
Manager 945-4222

Registry
Chief 945-6779

Eastern Region
Provincial Building
20 First Street South
Beausejour, Manitoba
ROE OCO

Land Manager 268-1411

Interlake Region
Box 1800
Gimli, Manitoba
ROC 1BO

Land Manager 642-8719

Northeastern Region
59 Elizabeth Drive
Thompson, Manitoba
R7N 3E5

Land Manager 677-6828

Northwestern Region
Box 2550
The Pas, Manitoba
R9A 1M4

Land Manager 623-6411

Southeastern Region
Box 2019
Steinbach, Manitoba
ROA 2AO

Land Manager 326-5068

Western/Southwestern Region
27-2nd Avenue S.W.
Dauphin, Manitoba
R7N 3E5

Land Manager 638-9111

Parks Branch
258 Portage Avenue
Winnipeg, Manitoba
R3C OB6

Director	945-4362
Secretary	945-3834

Program Services

Chief	945-4370
Leases and Permits - Supervisor	945-6773
Planning - Head	945-4366
Design and Development Head	945-4382
Planning and Resource Management - Head	945-4366

Visitor Services

Chief	945-4413
Commercial Concessions - Head	945-4406
Interpretation - Head	945-4375
Marketing - Head	945-4374

Eastern Region
Provincial Building
20-1st Street South
Beausejour, Manitoba
ROE OCO

Park Manager	268-1411

Northwestern/Northeastern Region
Provincial Building
3rd Street and Ross Avenue
Box 2550
The Pas, Manitoba
R9A 1M4

Park Manager	623-6411

Southeastern/Interlake Region
Industrial Park Complex
Box 6000
Gimli, Manitoba

Park Manager	642-9176

Southwestern Region
Westbran Building
108-18th Street
Brandon, Manitoba
R7A 5A4

Park Manager	736-6306

Western Region
Provincial Building
27-2nd Avenue S.W.
Dauphin, Manitoba
R7N 3E5

Park Manager	638-9111

Whiteshell Region
Park Office
Rennie, Manitoba
ROE 1RO 369-5258

Regional Services Branch
200-1495 St. James Street
Winnipeg, Manitoba
R3H OW9

Director	945-0705
Fire Program - Superintendent	945-7781
Guide Licensing - Coordinator	945-8166
Hunter Safety - Coordinator	945-6647
Public Information Inquiries	945-6784
Enforcement Services - Superintendent	945-5584

Eastern Region
Provincial Building
20-1st Street South
Beausejour, Manitoba
ROE OCO

Manager	268-1411
Regional Superintendent	268-1411

Interlake Region
Box 6000
Gimli, Manitoba
ROC 1BO

Regional Superintendent	642-8551

Northwestern Region
3rd Street and Ross Avenue
The Pas, Manitoba
R9A 1M4

Manager	623-6411
Regional Superintendent	623-6411

Southeastern Region
Box 2019
Steinbach, Manitoba
ROA 2AO

Regional Superintendent	326-5067

Southwestern Region
108-18th Street
Brandon, Manitoba
R7A 5A4

Regional Superintendent	726-6299

Northeast Region
59 Elizabeth Road
Thompson, Manitoba
R8N 1X4

Regional Superintendent	677-6628

Western Region
27-2nd Avenue S.W.
Dauphin, Manitoba
R7N 3E5

Manager	638-9111
Regional Superintendent	638-9111

Whiteshell Region
Park Office
Rennie, Manitoba
ROE 1RO

Regional Superintendent	369-5290

Resource Integration Branch
(formerly Resource Allocation and Economics)
201-1495 St. James Street
Winnipeg, Manitoba
R3H OW9

Director	945-6658
Economics - Chief	945-2305
Land Use Planning - Chief	945-6661
Resource Planning - Chief	945-6656
Policy & Programs - Chief	945-6800

Surveys and Mapping Branch
1007 Century Street
Winnipeg, Manitoba
R3H OW4

Director	945-6613
Data Management - Chief	945-5045
Field Surveys - Chief	945-6620
Geographical Names Program - Provincial Toponymist	945-1798
Land Description/Services - Supervisor	945-8394
Remote Sensing - Supervisor	945-6597
Map Distribution - Supervisor	945-6670
Mapping - A/Chief	945-6637

Water Resources Branch
1577 Dublin Avenue
Winnipeg, Manitoba
R3E 3J5

Director	945-6395
Deputy Director, Water Management	945-6678
Groundwater, Head	945-7403
Water Supply, Head	945-6397
Special Services, Head	945-7404
Water Control, Head	945-6496
Water Licensing, Head	945-6117
Deputy Director, Regional Engineering Operations	945-7488

Eastern/Northeastern Region
Regional Engineer 945-0168

Interlake Region
Regional Engineer 945-6490

South Central Region
Regional Engineer 945-6151

Southwestern Region
Neepawa Building
333 Mountain Avenue
Neepawa, Manitoba ROJ 1HO

Regional Engineer 476-2305

Western/Northwestern Region
Provincial Building
27-2nd Avenue, S.W.
Dauphin, Manitoba R7N 3E5

Regional Engineer 638-9111

Wildlife Branch
100-1495 St. James Street
Winnipeg, Manitoba
R3H OW9

Director 945-7761

Endangered Species and Nongame - Chief 945-6809

Commercial Management - Chief 945-7766

Fur, Head 945-7758

Habitat Management, Chief 945-7750

Game Management, Chief 945-6809

Wetlands Management, Chief 784-4355

Regional Operations, Chief 945-7750

Interlake Region
Industrial Park Complex
Box 6000
Gimli, Manitoba
ROC 1BO

Regional Wildlife Manager 642-8155

Northeastern Region
Provincial Building
59 Elizabeth Drive
Thompson, Manitoba
R8N 1X4

Regional Wildlife Biologist 677-6644

Northwestern Region
Provincial Building
3rd Street and Ross Avenue
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The Pas, Manitoba
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Regional Wildlife Manager 623-6411

Eastern Region
Provincial Building
Box 50, 20 First Street South
Beausejour, Manitoba
ROE OCO

Regional Wildlife Manager 268-1411

Southwestern Region
Agriculture Extension Centre
1129 Queens Avenue
Brandon, Manitoba
R7A 1L9

Regional Wildlife Manager 726-6448

Western Region/Dauphin
Provincial Building
27-2nd Avenue S.W.
Dauphin, Manitoba
R7N 3E5

Regional Wildlife Manager 638-9111

Western Region/Swan River
Box 640
Swan River, Manitoba
ROL 1ZO

Regional Wildlife Manager 734-5356